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ABSTRACT

"If we can put a man on the moon, why can't we solve the problems of our cities?" The demand for urban services and the manpower needs of local governments were increasing dramatically. Skilled professional personnel were unemployed. The Aerospace Employment Project was set up as a special pilot project to test whether unemployed professional aerospace personnel could be effectively utilized to help solve the urban problems. The premise was that aerospace scientists and engineers, unemployed due to defense budget cutbacks, had background in the managerial skills needed in local government. Orientation to local government problems and jobs, career transition difficulties, and reactions of the local governments are detailed in the report. The project's primary conclusion is that former aerospace professionals can bring needed skills to local governments that are receptive to the opportunity, but a catalyst such as the Aerospace Employment Project is necessary to bring the parties together for their mutual benefit. (MF)

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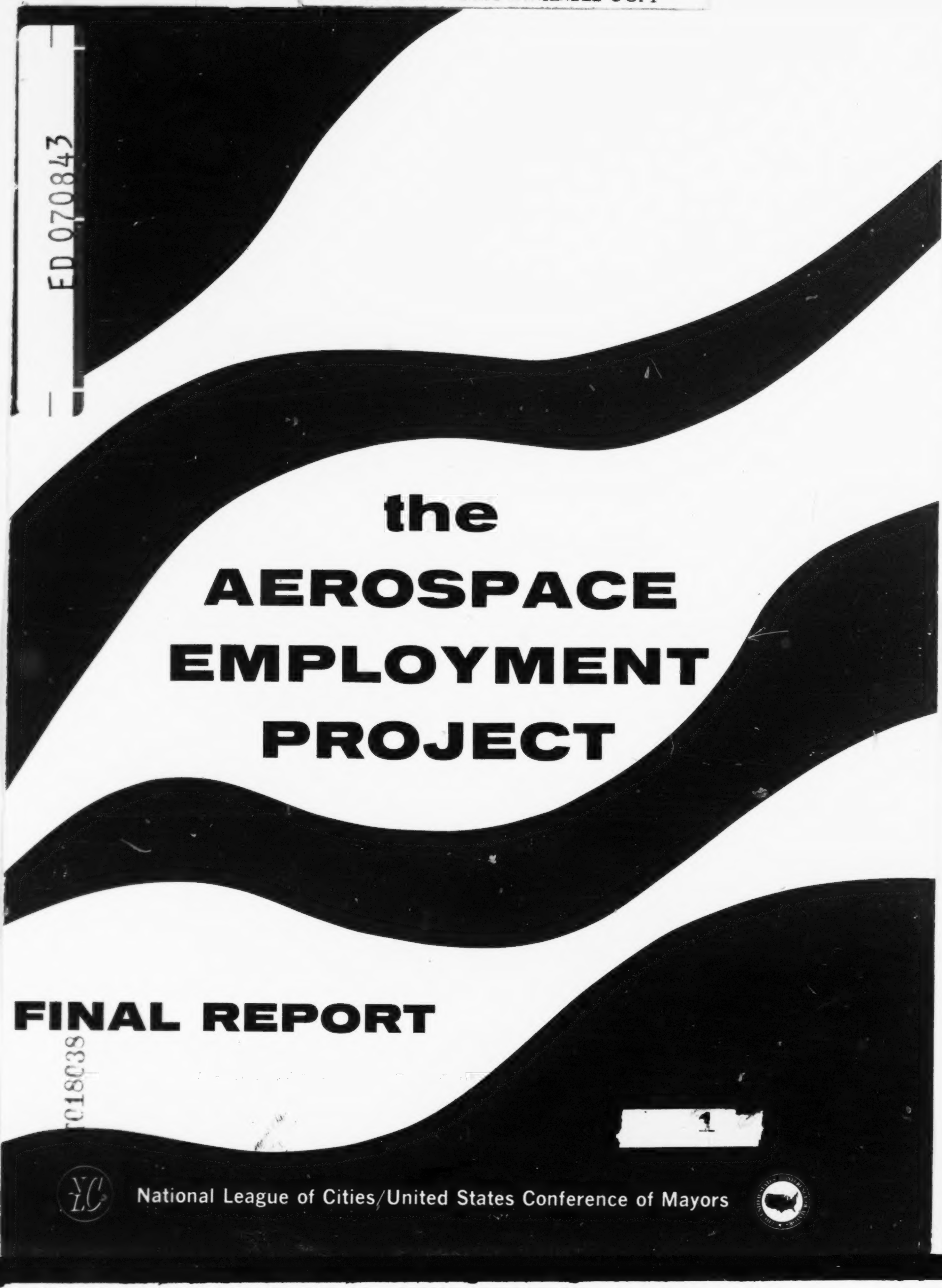

the AEROSPACE EMPLOYMENT PROJECT

FINAL REPORT

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National League of Cities/United States Conference of Mayors

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AEROSPACE EMPLOYMENT PROJECT
FINAL REPORT

The National League of Cities and the United States Conference of Mayors

AEROSPACE EMPLOYMENT PROJECT

FINAL REPORT

FINDING NEW CAREERS IN LOCAL GOVERNMENT FOR UNEMPLOYED ENGINEERS AND SCIENTISTS

Submitted to
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The Aerospace Employment Project sought to determine whether unemployed aerospace scientists and engineers would be interested in and capable of transferring to careers in the middle-management level of local governments; whether jurisdictions would readily hire them, and whether they would make unique and significant contributions to solving urban problems because of their backgrounds in innovative industries. A universe of 400 professionals, screened for skill and motivation, were given a 30-day orientation course in problems of local government. A job development network was established to place them in appropriate positions in local government. Research was conducted on their performance on the job.

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TABLE OF CONTENTS

Page

ACKNOWLEDGEMENTS...iii

LIST OF TABLES...viii

ABSTRACT...ix

Section

I. INTRODUCTION..1

II. MEETING LOCAL GOVERNMENT MANPOWER NEEDS..................16
- Placement Results...17
- Receptivity of Local Hiring Authorities...................18
  - Government Jobs for AEP Participants....................19
  - Attitudes of Local Hiring Authorities...................22
  - Barriers to Employment..................................25
- Analysis of Placement Results
  - Numbers and Percent Placed..............................29
  - Numbers Placed by Target Area...........................33
  - Rate of Placement.......................................35
  - Placements in States, Counties and Cities with Model Cities Programs...........................38
  - Types of Placements in the Public Sector................40
  - Multiple Hires in Local Government......................44
- Post Placement Job Performance
  - Local Governments' View of Aerospace Skills.............45
  - Job Performance Measurements............................48
    - University of California at Berkeley..................49
    - Massachusetts Institute of Technology.................50
  - Characteristics of Engineers and Scientists Placed in the Public Sector......................52

III. ORIENTATION AND ON THE JOB DEVELOPMENT..................54
- ORIENTATION
  - The Mechanics of Orientation............................55
  - Findings: Massachusetts Institute of Technology.58
  - Findings: University of California at Berkeley..59
  - Operational Advantages..................................61
    - Project Staff and the Candidates
    - Related Project Logistics
    - Participant Morale
    - Orientation as a "Reflective Setting"
    - Employer Reactions
    - Job Interviews for Participants

Section Page

On the Job Development
  Purpose and Procedures for Disbursement.........64
  OJD Fund Requests..............................65
  Examples of OJD Utilization....................66
Conclusion......................................72

IV. THE DELIVERY NETWORK........................75
Prime Elements of the Network
  State Employment Services......................76
  Public Personnel Association...................77
  Public Interest Groups.........................78
  State Municipal Leagues........................80
  Self-Help Groups...............................83
AEP Promotional Efforts
  Selling the Project to Local Governments........87
  Acceptability of NLC/USCM......................87
  Types of Promotional Initiatives...............88
Functional Aspects of the Network
  Recruitment....................................91
  Selection......................................93
    Soft Screening...............................93
    Hard Screening - Oral Panels.................95
Statistical Candidate Profile.....................101
Conclusion.....................................101

V. ADAPTATION OF AEROSPACE SKILLS AND EXPERIENCE TO URBAN PROBLEMS.....104
Aerospace Skills In Local Government...........106
  Examples of Successful Adaptation.............110
University Findings on Adaptation and Performance..115
  University of California......................119
  Massachusetts Institute of Technology..........119
Conclusion.....................................119

VI. ANALYSIS OF FURTHER FACTORS AFFECTING PLACEMENT....123
The Relocation Factor..........................124
  Residency Requirements........................127
The Salary Factor..............................130
  Public Sector Averages........................132
  Private Sector Averages.......................132
  Total Earnings of Participants................132
  Average Salaries by Target Area...............134
The Age Factor.................................136
The Educational Factor.........................138
Length of Unemployment.........................139
Other Psychological Factors....................143
The Effect of the Emergency Employment Program Upon Placement.....148

Section Page

APPENDICES....................................151

Appendix A: Job Matching....................................151
Appendix B: Listing of Public Sector Placements........163
Appendix C: Listing of Private Sector Placements.......177
Appendix D: Profile of Remaining Unemployed AEP Participants....................................185
Appendix E: Glossary of Terms....................................189

LIST OF TABLES

Table Page

1. Placement Information....................................32
2. Placement Status by Target Area...............34
3. Rate of Placement for AEP Participants........36
4. Rate of Placement in the Public Sector by Target Area...................................37
5. All State, County and City Jobs in Jurisdictions with Model Cities Programs......39
6. Types of Public Placements for AEP Participants...................................43
7. On the Job Development Funds..................65
8. How Those Selected Learned About AEP..........92
9. Oral Panel Scores.............................98
10. Oral Panel Scores by Target Area.............100
11. Statistical Candidate Profile................101
12. Relocation of AEP Participants...............126
13. Salary Comparisons (Former and Present Jobs).131
14. Average Salary by Target Area................135
15. Age Distribution of AEP Participants.........137
16. Degree of Educational Attainment of AEP Participants...................................140
17. Average Number of Months Unemployed (Upon Entry into the Project).....................142

ABSTRACT

Scientists and engineers in the aerospace and defense industries have displayed remarkable ability to solve problems and accomplish difficult goals. Many became unemployed in the early '70s as the result of a decline in Federal expenditures.

At the same time these unique talents were lying fallow, enlightened experts in local government were realizing the need for new approaches to alleviate the burgeoning problems of the cities and to meet the urgent demand of citizens for effective services.

The Aerospace Employment Project was launched by the Department of Housing and Urban Development and the Department of Labor as a test of whether the aerospace professionals could help effectively to meet the needs of local government.

The project was conducted by the National League of Cities and the United States Conference of Mayors under a $1.3 million contract with the Federal departments announced in March 1971.

More than 6,500 aerospace and defense professionals who learned of the project through professional journals and State and private employment agencies expressed interest in participating. The most promising 1,000 applicants from the 10 target

areas of high unemployment were interviewed by employment and engineering specialists, and a universe of 400 was selected.

After slight attrition, 376 attended 30-day orientation courses at Massachusetts Institute of Technology (for about half the universe who lived on the East Coast) and the University of California at Berkeley (for the West Coast). The courses were designed to introduce participants to the terminology and problems of local government and to acquaint them with the types of jobs available.

The universities were charged with conducting post-employment interviews with participants and their employers to determine whether the orientation course was practical and effective, as well as to assess the validity of the project's premise that former aerospace/defense professionals would be an asset to local government.

The project also established methods of identifying and generating job opportunities in local government for the participants and matching job openings with participants' skills. Several organizations were enlisted to form a job delivery network, whose effectiveness the project sought to determine.

Of the final universe of 371 participants, 77 percent (288) were placed as of April 30, 1972. Of those placed, 65 percent (186) were in local governmental jobs; 35 percent (102) were in private sector jobs.

The project found that, generally, local governments could indeed make use of the skills of former aerospace and defense professionals. Interviewed by staff of the two universities that ran the orientation, 90 percent of the public employers of AEP participants said they were performing to expectations or better.

However, local governments did not draw upon this pool of skilled manpower as soon as they learned it existed. This was partly due to employment regulations and job specifications. Often these are narrowly and rigidly applied. Other functions included limited budgets, residency requirements, civil service specifications, job descriptions that are often restrictive or outdated--and above all, a cumbersome mechanism for making decisions about hiring that was often discouraging to AEP participants.

Some hiring authorities had preconceptions about aerospace workers that made them skeptical about whether they would fit in.

The extent to which AEP participants have brought innovative approaches to government jobs is indicated in some of the examples contained in this report. The final verdict on how great their contribution may be will not be in until they have been on their jobs longer, of course.

The project operated on the premise that aerospace and defense scientists and engineers have demonstrated broad talents in their former positions--not just in "hard engineering" but in management analysis, budgeting, research and development, marketing, and other skills that are needed to build the capacity of local governments. Some governments were receptive to the concept; a few created special jobs for AEP participants geared to their talents. Other public employers have been less imaginative, hiring participants for existing positions, largely on the basis of their technical backgrounds and education, and remaining cautious in testing the extent of the participants' capabilities.

The project sought to learn how difficult the career transition from aerospace/defense to public service would be. About 24 percent of the participants hired in the public sector felt that substantially different skills were required in their new jobs than they had exhibited formerly. Eighteen percent found their new jobs very similar to their former jobs (usually these were the so-called "hard" engineering positions). The rest found some similarities and some differences: for example, they might be still working with computers, but programming them with a different "language," or applying evaluation techniques used in aerospace to meet very different objectives.

AEP participants seem to perform best when employers allow them to use initiative and set challenging tasks for them. As one manpower expert put it: "the better prepared the agencies were, the more effectively were the men utilized."

In addition to the orientation courses, the project supplemented participants' training opportunities by offering public employers $1,000 for on-the-job development of each participant hired. How effective were these devices?

Participants reported that orientation had generally increased their enthusiasm for pursuing careers in the public sector, had prepared them for problems they would face, and had familiarized them with the terminology of local government. Some employers expressed satisfaction with the amount participants had learned of local government during the short course.

About half the local governments hiring AEP participants did not request the $1,000 development fund. Often, it seems, such funds would go into a general treasury and the department hiring the participant would have difficulty getting access to them. In other cases, it appeared the hiring authority believed the participant could grasp the job with no training beyond orientation and his past experience. Of the half that did, no official claimed the amount was inadequate. There is some indication that those governments utilizing the on-the-job development funds did have a need for them to make it feasible to hire a professional without experience in local government.

During the project, a number of techniques were established to identify job openings in local government and to place professionals who could fill the openings effectively. The report describes those governmental and private agencies that helped accomplish this objective. The most effective groups were formed by the participants themselves with project guidance and support. They were highly motivated and remained loyal to their colleagues after finding employment, continuing to seek job openings for those still unemployed. The self-help groups maintained a continuous communications linkage between the participants and those running the project.

The project found that participants were willing to accept lower salaries than they had been making in private industry to work in local government, but they were reluctant, on the whole, to relocate. Governments appeared more willing than private industry to hire older men considering their greater experience a countervailing factor. Jurisdictions on the West Coast appeared more amenable to hiring participants than those on the East Coast--and were more likely to create a position tailored to a participant's talents.

The project's primary conclusion is that former aerospace and defense professionals can bring needed skills to local governments receptive to the opportunity. But it requires a catalyst to bring the parties together for their mutual benefit. The Aerospace Employment Project developed into such a catalyst. It was found that local governments which had been pleased with participants they hired generate enthusiasm for the project that encourages other governments. Thus, it is hoped that the project has laid a foundation upon which others will build in the future.

CHAPTER I

INTRODUCTION

INTRODUCTION

During the decade of the 1960s, the United States made a dramatic thrust toward the moon and the planets. A new industry flourished: aerospace.

To take this giant step for mankind, thousands of engineers, scientists and technicians applied their skills to problems that had never been solved before.

Many thousands of others were engaged in the modern technology of defense.

By 1971 there was a shift in national priorities. The Apollo program was nearing completion; defense production needs had diminished.

As a result, many of the scientists and engineers in these industries--through no fault of their own--found themselves unemployed. Months passed and new contracts in aerospace and defense did not materialize. Some professionals took part-time or low-paying jobs--when they could find them.

At the same time, the public complaint, "If we can put a man on the moon, why can't we solve the problems of our cities?" was being heard increasingly. For more than a decade the need and demand for urban services had been increasing dramatically. Manpower needs of local government rose 42 percent over two years.

Clearly, there was a need for new approaches to old problems in local government--problems that had not been solved. In many cities and even in suburbs, pollution was becoming a health hazard; traffic control was so poorly planned in places that mass tangles of vehicles brought the city to a standstill; how to allocate the monetary resources of a community to best serve its residents was a major dilemma.

One answer might be to take the proven talent for problem-solving of unemployed scientists and engineers--talent lying fallow--and put it to work on the complex problems of local government.

In March, 1971, the U. S. Department of Housing and Urban Development and the Department of Labor announced a job pilot project, "Employment of Aerospace Scientists and Engineers in Local Government," to test this theory.

The National League of Cities and the United States Conference of Mayors was chosen to conduct this project--to be identified as the Aerospace Employment Project (AEP). The organizations, which have broad national membership among leaders of local government: The National League of Cities, representing 14,883 municipalities in all 50 states, serves a network of 147 Model Cities programs, various inter-governmental coordinators and manpower planners; the

U. S. Conference of Mayors having membership of the chief executives of some 750 major cities across the country.

The project's budget was established at \$1.3 million -- \$800,000 from HUD; \$500,000 from Labor.

OVERALL GOALS

The main purpose of the Aerospace Employment Project was to learn how receptive local government would be to the concept of drawing on a pool of skilled manpower that it had not previously tapped. How difficult would the transfer of management skills from the aerospace industry to local government be for the participants? How long would it take to find employment for them? Could a method of placement be developed that would be applicable to other industries employing specialized talents? Would the participants find their new careers challenging and rewarding--and would the cities be helped in solving their problems by the introduction of creative personnel in their governments?

AEP proposed to select some 400 aerospace and defense professionals who were interested in making a career change and whose skills would be valuable to local governments. They were to be given an orientation course that would sensitize them to the problems of the cities and familiarize them with the terminology and objectives of local government. (Initially, the project was also to place some 200 aerospace professionals directly in government without such training, but this plan was abandoned because the primary task was so difficult and time-consuming).

The Project contracted with Massachusetts Institute of Technology to provide the orientation course for about half the participants who lived near the East Coast. The MIT program was called Project ADAPT (Aerospace and Defense Adaptation to Public Technology). The University of California at Berkeley conducted the other intensive 30-day orientation course which they called the Aerospace Orientation Program (AOP), for West Coast participants. Both universities also conducted follow-up studies of how participants fared in their new positions and to determine what were their attitudes and those of their employers.

It was recognized at the outset that the candidates selected to participate in AEP would not be a cross-section of unemployed aerospace professionals, but rather a carefully selected sample of those who appeared most suitable for employment in local government and seemed likely to make a contribution to solving urban problems. The Project embarked on relatively uncharted seas in conducting this pilot effort. In addition to the important task of finding good positions for the unemployed professionals, AEP sought to develop techniques that could be applied to other programs involving placement of highly skilled manpower.

PROJECT OBJECTIVES

Four primary objectives were established for the project:

> *Objective I: To determine whether the professional manpower needs of State and local governments related to Model City capacity-building objectives can be met effectively, in part, from the ranks of unemployed aerospace and defense engineers and scientists.*

Would unemployed aerospace and defense professionals want to change their careers and enter local government?

Would local governments, known to have a stortage of skilled manpower, be receptive to hiring persons without experience in government?

Are jobs offered by local government sufficiently attractive that professionals would relocate and consider taking salaries lower than they had been making?

Objective II: *To determine whether a brief orientation and financial assistance for on-the-job development is necessary and adequate to aid the transfer of such personnel.*

Would the intensive courses offered by MIT and the University of California increase participants' interest in entering the public sector?

Would a 30-day course be adequate to acquaint participants with the needs and problems of local government?

What curricula should be offered in such a course to achieve the objective?

Is further training needed beyond the orientation course and would on-the-job training provided by the employer and partially reimbursed by the project satisfy that need?

What aspects of the orientation and training would participants hired by local government find most useful?

Objective III: *To determine whether a central organization of representatives of State and local governments can develop an effective inter-area network in cooperation with State Employment*

> *Service agencies and professional associations, for selection, development, and placement of special staff to fill primarily the Model City capacity-building needs of State and local governments.*

What would be the most effective network to identify jobs in local government suited to the background of AEP participants and select the most likely candidates to fill those jobs?

What organizational network would be most effective in informing local governments of the project, learning what jobs are available, and providing qualified personnel for the positions?

What is the best approach to generate job opportunities in local government? Implicit in this question is: What is the best technique for encouraging local governments to hire unemployed aerospace and defense professionals?

> *Objective IV:* *To determine whether professional skills available from unemployed aerospace and defense engineers and scientists can assist State and local governments in the development and utilization of new techniques in the solution of regional, State, and local problems*

related to Model City capacity-building needs and objectives including governmental operation and management.

Since passage and federal funding of the Demonstration Cities and Metropolitan Development Act of 1966, (Model Cities Act) it has been the Federal government's policy to encourage cities to build their capacities to serve the public through comprehensive planning, programming and management. The eligibility requirements for such funds not only place greater responsibilities on city officials but also necessitate a variety of skilled public employees to accomplish the expanded mission of Model Cities which seeks to discover innovative means of dealing with common urban problems. AEP set out to answer the questions:

- Could the unique management systems and analytical approach to project management, and the specific technological breakthroughs that had been developed in the aerospace and defense industries be brought to bear on the problems of the cities?
- How adaptable would the participants be to a new work environment?
- Were there certain aerospace related skills which were more adaptable than others in filling the needs of local government?

Are local governments sufficiently flexible to permit new employees to try innovative approaches?

Would AEP participants employed in local government feel that their talents were being properly utilized?

Had the performance of participants employed in local government met the initial expectations of public employers?

What led to successful adaptation?

HOW THE PROJECT PROCEEDED

The National League of Cities and the U.S. Conference of Mayors engaged Michael A. DiNunzio, Director of Urban Resources and Model City Director for the City and County of Denver (formerly Colorado Civil Service Commissioner), as project director. The initial staff, some of whom were temporary, included a deputy with experience in two Model Cities Programs, a public relations consultant, a job development adviser, a recruitment specialist, and a fiscal manager.

A massive communications effort was begun to inform public officials of the project. Letters were sent to all Mayors, City Managers, County Commissioners and Governors announcing the project and its objectives.

Media coverage was generated, supplemented by articles in urban professional journals.

The project selected a universe of 400 unemployed aerospace and defense scientists and engineers. Participants were drawn from over 6,500 who expressed interest in joining the project. They learned of AEP through a broad publicity campaign in professional journals, newspapers and through professional and State employment agencies.

As indicated by the number who responded, and the rapidity with which they responded, it was obvious that an opportunity for a mid-career transfer, as provided by this project, was extremely well received by this unemployed segment of the population.

The professionals were chosen from 10 of 14 geographical areas that had been initially identified by the Department of Labor for its Technological Mobilization and Re-Employment Program (TMRP). Those 10 areas were Seattle, San Jose, San Diego, Los Angeles, Orange County, Wichita, Boston, Long Island, Huntsville, and Cape Kennedy. The project sought professionals whose skills would contribute to building the capacity of local governments; who were interested in working in the public sector; willing to relocate and accept prevailing government wages for middle-management jobs, and who were eligible for TMRP funds made available for travel to job interviews and for relocation expenses.

Participants attended intensive orientation courses at MIT and the University of California. The professionals were introduced to the problems of local government through a variety of teaching techniques, including simulation gaming, panel discussions and lectures by prominent civic authorities, field trips, and rap sessions. The universities measured their attitudes toward government and began compiling statistics that would be used in follow-up evaluations after participants were placed.

The project, working with public interest groups including five State Municipal Leagues, identified job opportunities in local government and waged a promotional campaign to inform jurisdictions of the availability of this pool of skilled manpower.

As job orders were received, the project staff matched the specifications of the job with those participants who seemed best suited to the opening, arranged interviews and provided reference checks for applicants.

The project staff organized a network to bring together employers and participants. One of the most effective linkages in this network was the self-help groups of participants organized by AEP which maintained close communications between headquarters and the 10 target areas, sustained morale among participants and whose further objective was to find jobs in the area for its members.

The project learned, however, that although local governments have an indisputable need for skilled manpower, they will not hire members of a specific group automatically. A carefully planned and executed campaign is a necessary component of any such project. There are barriers to employment that must be recognized so they may be overcome where possible.

HOW THIS REPORT IS ORGANIZED

The remainder of this report has been built essentially around the four objectives of the project.

Chapter II discusses what was learned about the potential for finding jobs in local government for unemployed aerospace and defense professionals. The degree to which the objective was achieved is measured by placement of participants and an evaluation of the performance of participants in the public sector.

Chapter III considers the usefulness of the orientation courses followed by on-the-job training subsidized in part by government funds. The substance of the orientation courses is discussed; benefits derived from it, both to the individuals and to the overall objectives of the project, are considered.

The delivery netowrk established by NLC/USCM for the Aerospace Employment Project is described in Chapter IV. Elements of the network are evaluated in terms of their usefulness in selecting participants, developing job opportunities and actually placing participants in public service jobs.

Chapter V reports the findings of AEP and the two universities on the success of participants in transferring their skills to the area of local government. An analysis of how evaluation of the degree to which aerospace and defense-related skills can help solve urban problems is presented through examples of participants' performance on the job. It should be recognized that many participants have not been employed long enough for a definitive judgment of the extent of their contribution to be made nor can it be predicted with certainty whether they will perform to their employers' expectations.

Chapter VI examines a variety of factors that had substantial bearing on the outcome of the objectives--age of the participants, length of time unemployed, the difference in salary between local government and the aerospace industry, educational variances, and the psychological attitudes of the employed professionals. The effect of the Emergency Employment Program on AEP placements, a program begun after the project was launched, is considered in terms of its potential benefits for similar projects.

The reports of the universities on the structure of the orientation courses and follow-up interviews with participants that were placed (and their employers) are contained in separate volumes but should be considered an integral part of this report. In some cases, findings in this report are based on the universities' research. Reference is here made to MIT's Project ADAPT (Report #2) "Review and Assessment of Post-Orientation Careers of Project Participants," and to the University of California at Berkeley's Aerospace Orientation Program Report, "Adapting Professional Manpower From Aerospace to Urban Government".

The Aerospace Employment Project supplements its final report with an Attachment (under separate cover) containing project forms, informational and promotional materials and communications generated by the AEP during its existence. The purpose of the attachments is to illustrate the type of procedural materials utilized by the project in conducting its main tasks.

POSSIBLE USES OF THIS REPORT

The Aerospace Employment Project was conducted during a particular brief period of history whose circumstances are unlikely to be replicated. However, the problems addressed by the AEP will probably remain problems. Cities will unquestionably need innovative, highly skilled personnel to help them solve those problems that will have abated slightly if at all. Many former aerospace and defense professionals still may have to turn to new careers.

Findings in this report about the characteristics of public employers and unemployed scientists and engineers may be helpful to the Technological Mobilization and Reemployment Project (TMRP). Some findings will apply broadly to manpower pools with specialized talent. Local Government officials should re-examine their personnel policies in view of the findings in order to utilize the optimum talent available to assist in Model Cities capacity building. The techniques of job matching developed by AEP could have broad application for employment projects operating under time constraints and drawing on pools of specialized personnel of somewhat similar skills.

CHAPTER II

"MEETING LOCAL GOVERNMENT MANPOWER NEEDS"

CHAPTER II

MEETING LOCAL GOVERNMENT MANPOWER NEEDS

Four basic objectives were established for the Aerospace Employment Project. These objectives attempted to determine the project's effectiveness in meeting local government manpower needs.

The first objective, concerned with present State and local government professional manpower needs, was:

> *To determine whether the professional manpower needs of State and local government can be met effectively, in part, from the ranks of unemployed aerospace and defense engineers and scientists.*

The project sought to answer several questions under this objective. Essentially, how did local governments perceive their professional manpower needs? What factors were considered in hiring professional personnel in middle-management positions? How extensive was the demand for administrative, professional and technical personnel in local government? Were there certain barriers which worked to undermine the hiring of quality personnel? How were these employment barriers eliminated or partially reduced? Was control over the vital personnel function centralized or dispersed in local government?

Obviously, the characteristics of the labor supply available to State and local government bear close relationship to adequate "matching" of manpower resources to needs. How adaptable were former aerospace and defense engineers and scientists to a new work environment? Did these unemployed professionals meet, in part, the manpower needs of local government? What skills, characteristics or attributes were more readily acceptable in local government? What types of professional jobs did engineers and scientists fill in local government?

AEP's contribution to meeting local government professional manpower needs can be measured in part by:

(1) the percentage of those selected and trained through AEP who have obtained employment in the public sector, and,

(2) the proportion of those placed who perform effectively on the job.

This chapter explores certain issues which relate to the above measurements for Objective One by examining the degree of local governments' receptivity to the project's manpower pool.

PLACEMENT RESULTS

°°° As of April 30th, there were 371 project participants.

- Of these 288 (or 77 percent) were employed through the project.
- There were 186 in governmental jobs (about 65 percent of total placements).
- Private employment had been found by 102 participants (or 35 percent).

RECEPTIVITY OF LOCAL HIRING AUTHORITIES

Through job development efforts, the project was exposed to more than 1,000 local governmental units. More than 300 jurisdictions actively participated in the project by submitting job orders, reviewing applications and interviewing project participants.

- As of April 30th, a total of 101 State and local governments hired AEP participants.
  - 11 States and The District of Columbia hired a total of 32 participants (or 17 percent of public placements).
  - 13 Counties hired a total of 35 participants (or 19 percent of public placements).
  - 76 Cities hired 106 participants (or 57 percent of public placements).
  - 17 State, county and city governments hired more than one AEP participant.

Participating State and local hiring authorities have expressed approval of the professionals they have hired and of the method by which this type of personnel was made available to them.

Often the project would receive comments such as:

> *"It is, of course, obvious already that certain of the project graduates are destined for greater success than others."*
>
> *"I feel the project is highly successful - we have obtained some intelligent original thinkers to assist us in our service to the public - while the new employees are qualifying themselves for advancement in a new field. We can hardly expect more than that."*
>
> *"To us this was an unusual experience in that every candidate (interviewed) was supremely qualified to meet our needs. In fact, we had to seek the assistance of an old friend from the National Academy of Engineering to help with the final decision."*

GOVERNMENT JOBS FOR AEP PARTICIPANTS

Local government positions cover a wide range of responsibilities and functions. In a broad sense, all public jobs are part of an effort to improve urban services whether within separate agencies, through joint and cooperative ventures or through general responsiveness to its citizens. In its job development efforts, AEP sought significant jobs for its participants. Middle-management positions in local government were the primary targets in the identification of jobs. At this level of government employment, persons begin to have a voice in decision-making processes that affect broader policies and strategies.

Participants placed by AEP in public sector jobs are now located on many levels of government -- from a personnel specialist trainee to a director of projects with considerable responsibility. Some new jobs have been created for participants that were especially designed to utilize their talents. For example, four participants were placed in a Public Works Department of a large metropolitan city. The Department was under reorganization when the AEP applicants were introduced to the Commissioner for possible employment. Because of the participants' enthusiasm and interest, the Department hired them as Chief of Communications & Information, Chief of Research and Development, Physical and Social Scientist and Analytical Scientist. The Department tried a new approach by generalizing assignment of tasks and responsibilities. These participants have created a new communications and information center, a revised and upgraded quantitative analysis section, and a reorganized administrative branch for the Department.

Other participants have shown enterprise in presenting their credentials to local government. For example, one individual so impressed a mayor with his grasp of the issues that he was asked to return that afternoon with a detailed presentation of his assessment and recommendations for the reorganization of the administrative branch. He returned for a two-hour meeting, armed with appropriate charts and graphs. He was hired.

Most participants placed in the public sector filled existing vacancies rather than specially created positions. Many AEP engineers and scientists were placed in jobs which were administrative and closely aligned with the management, planning and supervisory aspect of public programs. Some other jobs were created recently because of public concern and interest, for example, air pollution engineer, environmental scientists, researcher in solid waste materials, ecological scientist, and water quality specialist. Other jobs obtained by the participants were oriented to systems for achieving set objectives; these included management systems analysts, training coordinators, Federal/State fund coordinator, criminal justice systems specialist, grant coordinator, city demonstration coordinator, and research coordinator and planner. Many other participants obtained positions requiring skills in engineering such as utility systems engineer, city/town engineer, industrial engineer, mass transit engineer, civil engineer, and building construction engineer. Chapter V of this report discusses the roles, functions and responsibilities associated with AEP placements in the public sector in more detail.

ATTITUDES OF LOCAL HIRING AUTHORITIES

Some local government officials were enthusiastic about the prospect of drawing on the resources of the AEP manpower pool. Others were skeptical about how well personnel with backgrounds in aerospace and defense would fit into local government. Some hiring authorities were willing to try AEP participants while maintaining reservations.

Hiring authorities with a generally positive attitude toward AEP participants chose to employ them for one or more of the following reasons:

---because they would require little or no additional training for the job;

---because they had "maturity of experience" - they brought to the job a wealth of program management experience and "problem-solving" techniques;

---because their backgrounds indicated their work would be "meticulous and detailed," "pragmatic in approach," "creative" or they would be "self-starters;"

---because they possessed the ability to study complex problems and make decisions, and were experienced in developing alternative solutions to problems or consideration of management.

Some of the negative reactions of local government hiring authorities are discussed below.

Three major negative attitudes of government hiring authorities toward aerospace engineers and scientists were discovered by the project through extensive interviews and telephone conversations:

a. The engineers and scientists were thought to be using local government simply as stop-gap employment until the employment crisis in aerospace and defense had passed.

b. Participants were seen as a *stereotype*, characterized as technicians with no interest in people or ability to deal with them; or viewed either as narrow-gauge persons, interested only in one small part of a broad scheme, or as individuals accustomed to thinking in cosmic terms who would be disinterested in such mundane urban problems as sanitation or public works.

c. Potential employers greatly overestimated participants' former salaries and assumed that they would be dissatisfied working for the salaries local government could afford to offer. (The actual difference, as AEP staff pointed out, was not substantial at all.)

The project responded by explaining to the hiring officials how the participants had been carefully selected and that motivation to change careers, specifically to work for local governments, had been a major factor in selection:

°°° that participants were chosen because of their administrative and management capabilities;

that efforts were made to weed out those interested only in narrow aspects of engineering;

°°° that participants realized that salary cuts and relocation might result but had maintained interest in the project;

°°° that project staff was prepared to select from the universe of participants those persons whose qualifications most closely matched the jurisdiction's job requirements and that the hiring authority would be presented with resumes of likely candidates, rather than flooded with applications that might be unsuitable;

°°° that project participants had demonstrated skill in highly complex fields and were accustomed to tackling difficult problems in innovative and sophisticated ways;

°°° that the project was geared to eliminating much of the red tape characteristic of some employment programs.

BARRIERS TO EMPLOYMENT

Although State and local governments have a well-documented need for skilled personnel at the middle-management level, they also in many cases have restrictive criteria for employment.

In *"A Survey of Current Personnel Systems in State and Local Governments,"* published in the Spring, 1971, volume of Good Government, a number of the problems encountered by AEP were cited:

> "Most State and local jurisdictions organize their personnel systems according to a Civil Service Commission model. Some 80 percent employ the merit system - they attempt to insulate the employment and promotion processes from political consideration. About 25 percent of these systems have a residency requirement for hiring entry level administrative, professional and technical persons (as against 28 percent with such requirements for unskilled workers).
>
> State systems rely heavily on college degrees and written tests for their entry level administrative, professional and technical positions; local governments stress experience and education, with less emphasis on written tests. State systems offer more job opportunities both in terms of existing vacancies and annual job openings; county governments offer fewest opportunities.
>
> Experience is required by 77 percent of all governmental systems as a qualifying factor in hiring professionals (as opposed to 62 percent for unskilled workers).
>
> There are more than 750,000 State and local government job opportunities developed each year -- exclusive of positions in educational institutions. At any given time, there are 360,000 such job vacant."

Job development efforts confirmed that a significant number of policy-oriented, middle-management and technical positions are available in State, county and city governments. Identifying local job opportunities was not a major problem. During the first nine months of the project more than 1,000 job opportunities were identified -- approximately 2.5 jobs per participant.

However, the project had set criteria under which one-third of the job openings were not acceptable. These criteria required:

a. that jobs be at the middle-management level of responsibility (whether in policy, planning or analytical technical areas);

b. that the salary and geographical location be sufficiently attractive to give participants an incentive to relocate;

c. that the jobs be permanent and part of a career ladder; and,

d. that the jobs be oriented to improving the capacity of the local government.

Some hiring authorities who were convinced that the aerospace professionals could indeed make a contribution to local government still faced the following constraints:

a. *Budget Problems:* Salary and benefit costs have soared in local government. Existing personnel costs in the face of tight budgets make it difficult to hire new employees even though they are needed.

b. *Residency Requirements:* Some jurisdictions have firm requirements that residents be given any available jobs. In others, employers follow the political wisdom of "taking care of our own" before seeking new employees out of the city, county or State. For example, in Model Cities, preference must be given to Model Neighborhood residents. *Local governments preferred to hire from within their local area regardless of a non-resident's qualifications and skills.*

Under the Emergency Employment Act, only residents were initially eligible. Some jurisdictions rejected AEP participants from other areas for this reason even though they were qualified for the position. (Later, the Department of Labor granted a waiver of the residency requirement to AEP participants seeking employment in local government outside their residencies).

c. *Inflexible Job Descriptions:* Many local governments were reluctant to modify their job specifications, perhaps fearing that one modification would destroy the integrity of the traditional hiring process and admit too many "exceptions" to the specifications. If a job description called for a Civil Engineering Degree, for example, the hiring authority might have no discretion to hire someone with other engineering skills that would equip him to do the job. In such cases the applicant must meet stringent educational and experience standards and often must be registered in the State.

d. *Rigid Civil Service Requirements:* Civil Service job descriptions often require minimum training and experience that are narrowly interpreted. Applicants are required to pass standard examinations that bear little relationship to the person's general background or the job for which he is applying.

e. *Complicated Hiring Procedures:* Some jurisdictions had such complex procedures for hiring that the participant they wanted could not afford to stay unemployed waiting during weeks of processing if another job was available to him. On the other hand, few jurisdictions were willing or able to earmark jobs for project participants and hold them vacant until orientation was complete. On the average, it took six to eight weeks to complete hiring procedures.

The authority to hire varies from locality to locality. For example, in some cities, the mayor must approve all hiring including the clerical level; other cities run under a strict civil service system and hiring authority is vested in a personnel director. Some governmental departments may hire directly, others need approval from the city manager or city council. Qualified applicants seeking jobs in local government can become lost in such hiring mazes and they waste time dealing with the wrong person while the real process of hiring occurs in some other department. A department head may honestly want to hire an AEP applicant, but may have his personnel request denied by another governmental body charged with the responsibility to hire all city personnel through a strict recruitment procedure. Internal political struggles, which only an insider can understand, may also negate placement efforts.

ANALYSIS OF PLACEMENT RESULTS

Numbers and Percent Placed:

°°° As of April 30th, there were 371 project participants.

- ooo Of these, 288 (or 77 percent) were employed through the project.
- ooo There were 186 in governmental jobs (about 65 percent of total placements).
- ooo Private employment had been found by 102 participants (or 35 percent).

AEP considered the numbers and percentage of participants a significant achievement considering the extensive employment barriers. Some participants decided that a career change in local government was not what they really wanted and returned instead to private industry. A few simply were found unsuitable by several local governments for a number of reasons, and so they sought other employment our of economic necessity.

The 65 percent placement rate in public jobs indicates many public employers considered AEP participants as a unique manpower resource although other public employers did not, for a variety of reasons, avail themselves of individuals from the project to fill their policy-oriented, middle-management and technical positions (or did not create new positions).

Where there was a demand, AEP participants filled the need (in this case, 101 jurisdictions). AEP participants could not be hired in cities where certain employment barriers barred their entry: yet there was a demand for professional technical expertise.

Over half of all placements (public and private) occurred on the West Coast. The rate of public sector placements for the West Coast group was 60 percent, compared to 40 percent for the East Coast.

Conversely, more private jobs were obtained by participants on the East Coast. New employment in private industry ran 78 percent. A small percent of those now in private positions returned to their former occupation in the same industry: aerospace or defense.

Eleven of these private jobs obtained by AEP participants were publicly oriented, such as housing coordinator for a non-profit housing corporation; director of environmental quality for a tuberculosis control center; and consultant on economic development studies (including some for Model Cities Programs). Although placement in the private sector was not part of the project's objectives, quasi-public jobs can be viewed as meeting community needs for social services.

Table 1 provides information on the numbers and percent placed through AEP up to April 30, 1972. (A complete listing of public and private jobs obtained by AEP participants, by locale, can be found in the appendix of this report).

As of April 30th, 83 AEP participants had not obtained employment. The majority of these were from the East Coast,

TABLE 1

PLACEMENT INFORMATION

As of April 30, 1972

I.	Total Number of Participants Employed		288*
	Percent Placement to all Participants:	77%	
	Total Employed from the *East Coast:*	129 (45%)	
	Total Employed from the *West Coast:*	159 (55%)	
II.	Total Number of Participants Placed in the *PUBLIC SECTOR*		186 (65%)
	Total from the *East:*	76 (40%)	
	Total from the *West:*	110 (60%)	
III.	Total Number of Participants Placed in the *PRIVATE SECTOR*		102 (35%)
	Number returning to Previous Employment:	22 (22%)	
	Number Placed in New Employ:	80 (78%)	
	Total from the *East:*	53 (52%)	
	Total from the *West:*	49 (48%)	

---

*Current placement rates to the month of August, 1972 are: 297 (or 80 percent) participants employed; 194 (or 65 percent) are in public jobs; and 103 (or 35 percent) are privately employed.

primarily the Boston area. Since that date, Public Employment Programs, sponsored through EEA, were able to open up a number of slots for AEP participants through lapsed funds and the removal of tight residency requirements. (Data on participants remaining unemployed is found in Appendix D of this report).

NUMBERS PLACED BY TARGET AREA

An analysis of the placement rate, by each of the 10 target areas, was made to determine differences or similarities among the groups. Rates of placement among these areas were compared with candidate characteristics and overall employment conditions.

All target areas achieved placement rates over 60 percent: Orange County had the highest rate: all participants had obtained jobs; Huntsville with 62 percent employed had the lowest rate. Orange County also had one of the lowest percentages of entry into the private sector. For comparison, Orange County's candidate profile contained the largest number of Ph.D. candidates while Huntsville had more non-degree participants than any other area.

There appears to be a significant correlation between high oral panel scores and eventual placements for AEP candidates. Huntsville, with high scores, was the only area where such a correlation could not be made.

TABLE 2

PLACEMENT STATUS BY TARGET AREA

As of April 30, 1972

TARGET AREA	TOTAL # CANDIDATES	PUBLIC PLACEMENTS	PRIVATE PLACEMENTS	TOTAL
Seattle	61 (16%)	31 (51%)	24 (39%)	55 (90%)
San Jose	24 (7%)	14 (58%)	3 (13%)	17 (71%)
San Diego	20 (5%)	14 (70%)	1 (5%)	15 (75%)
Los Angeles	43 (12%)	26 (60%)	13 (30%)	39 (90%)
Orange County	16 (4%)	15 (94%)	1 (6%)	15 (100%)
Wichita	24 (6%)	10 (42%)	8 (33%)	18 (75%)
Boston	91 (25%)	38 (42%)	25 (27%)	63 (69%)
Long Island	36 (36%)	15 (42%)	12 (33%)	27 (75%)
Huntsville	29 (8%)	9 (31%)	9 (31%)	18 (62%)
Cape Kennedy	27 (7%)	14 (52%)	6 (22%)	20 (74%)
TOTALS:	371 (100%)	(50%) 186 (65%)	(27%) 102 (35%)	(77%) 288 (100%)

Seattle and the California area were hardest hit by aerospace and defense cutbacks. Their unemployment rate was substantially higher than other localities during the life of the project. Placement in these areas, however, was considerably better than, for example, Boston. The proportional regional representation chosen by the project was originally based on unemployment figures during the Spring of 1971 for engineers and scientists. Boston candidates represented one-fourth of the total AEP universe selected during that period. In comparison, Boston's placement rate for public and private jobs ran consistently lower during the seven months of job development than did that of Seattle or the California area.

Table 2 shows the placement rates in the public and private sectors for each of the project's 10 target areas.

RATE OF PLACEMENT

Job development efforts for AEP were measured over a seven month period. As of April 30th, the placement rate was 77 percent. Half the participants secured jobs in the public sector; 27 percent found employment in private industry; 23 percent remained unemployed.

A steady increase from month to month was noted in each placement category. Overall, the highest increase occurred between the months of March and April.

TABLE 3

RATE OF PLACEMENT FOR AEP PARTICIPANTS

PERIOD	All Placements	Public Placements	Private Placements
October	18.8%	13.7%	5.1%
November	30.3%	20.4%	9.9%
December	41.4%	29.3%	12.1%
January	48.4%	34.2%	14.2%
February	55.2%	37.7%	17.5%
March	61.6%	42.5%	19.1%
April	77.5%	50.1%	27.4%

For public placements, Orange County had the highest rate at the end of the seven month period (93.7 percent). The lowest rates were from Wichita and Huntsville.

Rate of placement for all areas increased steadily over this period. The fastest rate of increase was again in the Orange County area. The slowest rate of increase was in the Wichita area where for a period of four consecutive months the rate remained the same at 37.5 percent for public placements.

Table 4 represents the overall rate of increase for placements in the public sector only for each of the 10 target areas.

TABLE 4

RATE OF PLACEMENT IN THE PUBLIC SECTOR

BY TARGET AREA

As of April 30, 1972

Seven Month Period

TARGET AREAS:	Seattle	San Jose	San Diego	Los Angeles	Orange County	Wichita	Boston	Long Island	Hunts-ville	Cape Kennedy
MONTHS:										
October	18.0%	12.5%	20.0%	20.9%	25.0%	16.6%	7.6%	8.3%	10.3%	11.1%
November	26.2%	12.5%	35.0%	27.9%	37.5%	33.3%	12.0%	8.3%	17.2%	18.5%
December	39.3%	20.8%	35.0%	41.8%	68.7%	37.5%	20.8%	13.8%	17.2%	22.2%
January	42.6%	37.5%	45.0%	41.8%	81.2%	37.5%	23.0%	25.0%	24.1%	22.2%
February	44.2%	41.6%	50.0%	46.5%	87.5%	37.5%	26.3%	27.7%	27.7%	29.6%
March	45.9%	50.0%	60.0%	43.4%	87.5%	37.5%	32.9%	33.3%	27.5%	37.0%
April	50.8%	58.3%	70.0%	60.4%	93.7%	41.6%	41.7%	41.6%	31.0%	51.8%

PLACEMENTS IN STATES, COUNTIES AND CITIES WITH MODEL CITIES PROGRAMS

One of the initial placement objectives for AEP was the identification of middle-management positions as potential job opportunities in jurisdictions utilizing the Model Cities concept of comprehensive planning and development.

The intent was to place AEP participants in public jobs of which two-thirds or better were to be city-capacity building positions. Of course, all public jobs are part of an effort to improve urban services whether or not they are within Model Cities jurisdictions.

Of all AEP candidates placed in the public sector, 50 percent (or 93 placements) obtained jobs in jurisdictions with Model Cities Programs. Five candidates secured jobs in Model Cities Programs as management analysts and Model Cities coordinators. The average salary for a position in a Model Cities Program was $12,808.

Most of the Model Cities capacity-building jobs were located in city governments (48 positions); Model Cities counties accepted 21 candidates; and States with one or more Model Cities Programs chose 13 candidates.

Table 5 provides information on those public jobs obtained by AEP participants which are located in States, counties and cities with Model Cities Programs.

TABLE 5

ALL STATE, COUNTY AND CITY JOBS IN JURISDICTIONS WITH MODEL CITIES PROGRAMS

	In States	In Counties	In Cities	In Model Cities Programs
Number of Jobs:	13	21	48	5
Percent Jobs to Total Placements:	15.2%	23.8%	54.4%	1.7%

Total Number of Jobs in States, Counties and Cities with Model Cities Programs------------------93

Percent Model Cities Capacity-building Jobs to Total Placement---------50.0%

Total Wages Earned in Model Cities Positions-----$64,044

Average Model Cities Salary--------------------$12,808

TYPES OF PLACEMENTS IN THE PUBLIC SECTOR

The managerial and technical personnel from aerospace and defense found various ways of adapting their skills and experience to the needs of local government. Some have been able to transfer their organizational skills to the purely administrative tasks of public agencies. Others have sought to improve coordination of activities both within and among municipal agencies. Still other AEP participants have directly applied their basic technical competence in public service engineering positions.

Initial Assumptions:

a. An underlying assumption of the AEP was that the transfer from aerospace to urban government could be most easily accomplished by personnel from the "soft side of aerospace". While their original training might have been technical, these engineers and scientists had recent experience in management, budgeting, program analysis, technical writing or marketing.

b. Another initial assumption was that the need in local government for administrative, professional technical personnel would be in administration, management analysis, planning and program development. The jobs would be in the policy-development (middle-management) level. Second, it was thought that this type of professional would be viewed as a "problem-solver" for urban programs and management.

Original job development efforts produced the following response from local governments: public employers sought to hire AEP participants in purely engineering positions, for example, civil engineers for civil engineering jobs. Approximately one-fourth of all jobs obtained in the public sector were of an engineering type in public works departments, sanitation divisions, data processing centers, city planning, and transportation.

Promotional efforts and continued discussions with interested public employers began to "open up" other job opportunities unrelated to purely technical skills. Cities that hired engineers or scientists in administrative or other management related jobs set an example by utilizing aerospace skills in the "soft-side" of local government. They provided AEP job developers with a model for other communities.

Twenty-three participants were hired as administrative analysts; others were hired as personnel technicians; some as environmentalists; a few as fiscal or budget officers; and others as planners in a variety of urban fields -- these were jobs where engineers had to deal with *people* and the *process*, not with slide rules and hydroxybutyric acid. (See Table 6, "Types of Public Placements for AEP Participants")

General groupings of public placements in job categories were made to compare "soft" placements (more administrative than technical) to "hard" placements. Approximately 53 percent of those placed in public jobs functioned in an administrative capacity; 41 percent were more technically oriented; the remaining 7 percent fell marginally between both job categories.

It would appear that local governments gave more weight to the engineer's most recent experience than to his initial training in purely technical disciplines.

Analysis of these positions indicated that in about 18 percent of the cases listed, the positions required skills and/or education that had little or no relation to the professional's past experience. Some 24 percent of the jobs were very similar to the type of work the participant had done formerly or were closely related to his specialized education. The remaining 58 percent of the jobs bore some relation to the participant's experience and education but demanded varying degrees of adaptability.

TABLE 6

TYPES OF PUBLIC PLACEMENTS FOR AEP PARTICIPANTS

Job Category	Number AEP Placements	Percent to total Public Placement
Administrative Analysts and/or Assistants	23	13%
Town, Civil Engineers/ Public Works Engineers	19	10%
Personnel (Technicians and Analysts)	18	10%
Planners	16	9%
Other Engineers	15	8%
Environmentalists	14	8%
Management Analysts	9	5%
Fiscal/Budget Officers	9	5%
Research & Development	8	4%
Traffic & Transportation	7	4%
Systems Analysts	7	4%
Mechanical Engineers	5	3%
Criminal Justice/Law Enforcement	4	2%
Programmers	4	2%
Education (Institutional Teaching)	3	2%
Grant Coordinators	3	2%
Civil Defense (Communications)	3	2%
Other	15	8%

MULTIPLE HIRES IN LOCAL GOVERNMENT

Superior performance by participants encouraged local governments to hire other engineers and scientists. Seventeen cities have hired more than one AEP participant.

One California city hired an AEP participant as an administrative assistant. Because of his initiative and enthusiasm, he was promoted to the position of EEA program administrator for the county. The vacancy created by the promotion was filled by another AEP participant. Eventually a succession of participants were hired in the city. The initial hire "opened the door" for other qualified applicants from AEP.

A city in the Southeast hired a participant in the early stages of the AEP and was so impressed with him that it investigated openings for participants in other city departments. Two other project participants were chosen for positions in the finance department for the city.

POST PLACEMENT JOB PERFORMANCE

The most visible measurement of AEP's contribution to meeting the manpower needs of local government is the performance of those who obtained employment in the public sector. One aspect of this measurement is how local governments utilized personnel from the aerospace industry.

Unfortunately, any assessment of job performance must be considered tentative at this time. When this report was written most of the AEP participants in public sector jobs had not been employed long enough to weigh their performance properly. However, some initial subjective judgments can be made which reflect the views of AEP participants and their supervisors.

LOCAL GOVERNMENT'S VIEW OF AEROSPACE SKILLS

Although each participant was selected for the project with a view to his having skills that would meet the needs of local government, it was soon apparent that certain participants were more in demand than others. Participants with such specialities as metallurgy, geology, and botany were difficult to place.

As could be expected, local governments wanted to interview those participants whose resumes indicated they could transfer into public careers with the least retraining.

The project received a few job orders that would have required a skills conversion that participants just could not accomplish, such as city attorney or chief accountant. However, it was more common to receive orders for straight technical jobs. Project staff felt that there were many positions participants *could* fill -- such as budget officer, management analyst, law enforcement coordinator or grantsman -- that did not require a highly technical background. Repeated contacts with potential employers were required to convince them of the versatility and adaptability of project participants.

Effects of Project Momentum: This task of convincing local officials was made considerably easier as participants were hired in non-technical positions and the jurisdictions hiring them could be cited as references. In other words, placements suggested to jurisdictions the kinds of jobs the project could fill; many hiring authorities did not understand the scope of the project and initially tended to seek only civil or mechanical engineers from the roster.

AEP project staff aided public employers through a process of "job matching". The process worked on two principal levels: matching candidate skills to job orders submitted by public employers or matching an array of skills to a perceived need. A detailed description of the job-matching process is presented in the Appendix of this report.

Engineering and Other Skills: The main reason aerospace professionals' skills are adaptable to local government is because industries operate in much the same manner as public agencies do.

Aerospace Industries:

1. Must seek available Federal dollars; they employ grantsmen and contract negotiators familiar with the

Federal system of grants and funding who can write proposals.

2. Must plan and develop massive programs to service aerospace and defense contracts using professional planners to shape and coordinate all levels of the industry.
3. Must implement programs to meet contract obligations: administrators and managers and supervisors are employed to supervise staff work on the projects.
4. Must manage programs financially to meet contract specifications through budget analysts, cost control experts, finance directors, accountants, auditors and the like.
5. Require such personnel as management and information specialists, evaluation teams, and statisticians to monitor and control the programs' operations and to assess progress according to defined goals and objectives.
6. Require personnel to market their hardware and services: public relations people, marketability study teams, and promotional staff.

Therefore, aerospace and defense engineers and scientists are more than just civil or mechanical engineers or researchers. They are program managers, personnel technicians, administrators, purchasing specialists, coordinators, statisticians, writers, teachers, trouble-shooters, editors, marketing experts, health and safety specialists, negotiators, and generalists. These and other skills were the real attributes engineers and scientists brought to local government. These were the skills which local governments have acquired in hiring participants in the AEP.

JOB PERFORMANCE MEASUREMENTS

The University of California at Berkeley and the Massachusetts Institute of Technology were charged with the responsibility of evaluating post-placement performance of participants who were placed in the public sector.

Each was to conduct interviews with the employed AEP candidates and their immediate supervisors after three and six month intervals. Low placement rates during the early monitoring phase of the project lead to a modification of the follow-up evaluation schedule. Project ADAPT staff at MIT conducted their interviews during March and April, 1972; the AOP staff at Berkeley were to conduct their investigations during July and August. (A preliminary follow-up was made by the Berkeley group during the month of April after questionnaires had been sent to all AEP candidates on the West Coast.)

Both universities reported extensively on interviews with participants placed in public jobs. Letters from employers to the project provided another indication. Project staff at headquarters also visited selected job sites (predominately on the West Coast) to interview key local officials such as mayors, city managers, and department heads. All three sources are subject to the caveat that most participants have not been in these jobs long enough to produce conclusive findings.

UNIVERSITY OF CALIFORNIA AT BERKELEY

In its preliminary survey the University of California found that the majority of jobs "were mostly advisory in nature, and carried little administrative responsibility". Most participants said they liked their jobs. Some felt that they were enlarging their jobs by applying techniques they had used in the aerospace industry. As to degree of skills transferral required, most respondents claimed that they had the "same worries about time, people, and resources". Some said "techniques are the same, but content is different".

According to UC, a large group of employed participants found job content meeting their expectations, but desired more responsibility and higher pay. They felt AEP had been helpful in giving them a "big picture" of what makes government tick and had exposed them to terminology and procedures which they use in their present jobs.

UC, in their preliminary interviews, talked only to participants, not to employers, because they felt it was too soon for employers to make an evaluation.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

MIT interviewed both public employers and participants placed in local government. MIT found that nearly nine out of ten candidates "were performing up to or better than the employer's anticipation". Some 75 percent exhibit a rate of improvement in their performance that meets or exceeds employer expectations.

MIT found one reason that some appeared to be performing below expectations was a mismatch between the participants' training and experience and the nature of the tasks assigned. Although job descriptions often sounded well-suited to an individual's skills, the actual assignments greatly underutilized such skills.

MIT listed the following as the main performance problems of participants now in local government:

(1) difficulty in breaking away from the need to specialize in a technical area;

(2) difficulty in transferring engineering skills specifically needed in aerospace to a more general context;

(3) inaccurate assessments of political ramifications of particular initiatives; and

(4) attitudinal problems stemming from feeling aerospace engineering work was elite -- or that career civil servants are incompetent or municipal government inefficient.

These problems are being ameliorated, MIT said, as participants become familiar with their new career environment, particularly the actors involved, the type of work to be performed, and the roles which candidates are expected to play in the general scheme of agency operations.

Another problem was the anxiety of participants to "make good" or show what they can do -- which made them ignore the political structure of their job and the sensitivities of those with whom they work. (MIT described it nicely as "bureaucratic indiscretion.")

So, initial findings indicate that former aerospace professionals can help cities with the capacity-building tasks. But it takes work and there are problems on the part of each partner in the enterprise. (For more detailed analysis on post-placement job performance, refer to MIT, Project ADAPT (Report #2), Review and Assessment of Post-Orientation Careers of Project Participants; and UC, AOP Program, Interim Review of the Orientation Project).

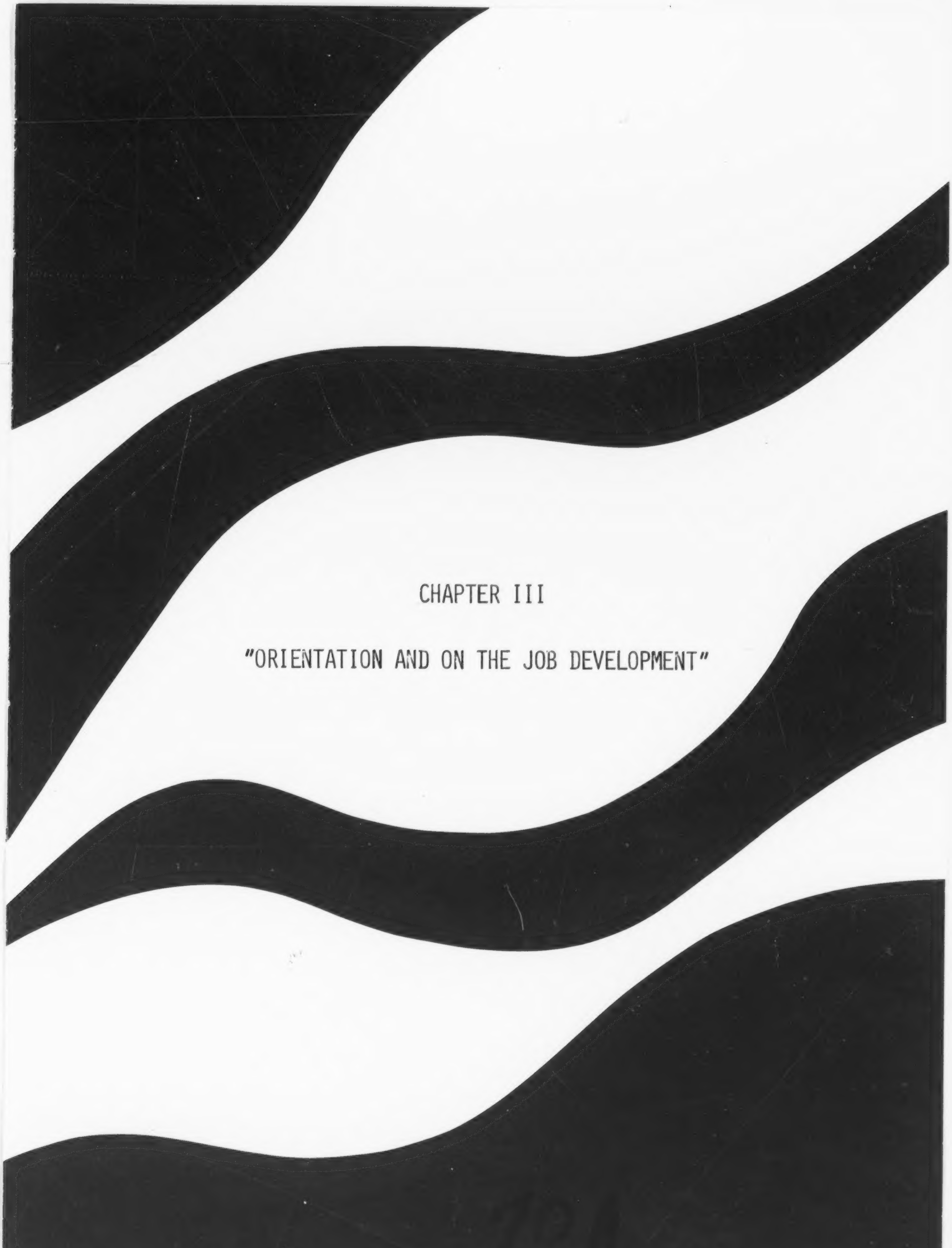
CHARACTERISTICS OF ENGINEERS AND SCIENTISTS PLACED IN THE PUBLIC SECTOR

MIT found aggressiveness and motivation key characteristics of engineers and scientists placed in the public sector. This can be manifested on three distinct levels.

The *first* is that of a highly aggressive individual who is determined to prove his "worth" to his immediate supervisors. For example, one participant placed in a New England town wished to show the chairman of the board of town selectmen that he was amply qualified to be executive secretary of the town government. Originally, he was hired in an EEA position of minor significance. He attempted to broaden his responsibilities by demonstrating administrative capability. The selectman now feels that he is distinctly qualified to assume such roles as planner/engineer, executive secretary, comptroller, or grantsman. Other participants have also, through exhibiting aggressiveness, been promoted to more responsible positions.

The *second* is a manifestation of aggressiveness that has negative consequences for engineers because it hampers advancement and places them in disfavor with fellow workers. The aggressiveness to "get the job done" can backfire through an inaccurate assessment of political ramifications, through unfamiliarity of relationships between major actors within a political environment, and through ignorance of certain standard procedures of the system. One such case of a "hard charging engineer" resulted in unusual upheavals during his first month on the job. His supervisor would ask him to do something and he behaved tactlessly in attempting to get the job done quickly. His supervisor had to spend considerable time mending wounds and reassuring other employees.

Finally, in the *third* case, some participants subdue their aggressiveness and adopt a cautious approach. Here the participant spends most of his time finding out why things are done the way they are. He studies roles and relationships and generally tries to become as informed as possible. One participant expressed it this way: *"I haven't come out real strong yet. You come in like a lamb, get your ducks all in a row..."*



CHAPTER III

"ORIENTATION AND ON THE JOB DEVELOPMENT"

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ORIENTATION AND ON THE JOB DEVELOPMENT

Assistance to both the employee and the employer was provided by the AEP in the form of an orientation program for the candidates and financial assistance to the employer for training AEP participants hired, if needed. The project's objective was:

> *To determine whether a brief orientation and financial assistance for on-the-job development are necessary and adequate to aid in the transfer of such personnel.*

Would aerospace professionals need extensive retraining to move into local government? If a basic introductory orientation course would be sufficient, what topics should be covered to provide the candidates with enough knowledge of government to function effectively on the job? In what ways did the orientation arouse participant interest in working for local government? Did orientation provide participants with sufficient special background to encourage hiring authorities to look carefully at their potential for career change? And, finally, how did orientation ease the adjustment to a new environment for those who obtained jobs in the public sector?

AEP sought to determine whether training funds for local governments facilitated the hiring of aerospace personnel. Would cities need to provide in-house training for AEP employees and, if so, were the funds sufficient to cover such costs? How were on-the-job funds utilized by local governments in transferring skills from one work environment to another? Or was no additional training required because of the unique background of engineers and scientists?

The following is a discussion on the two methods developed for AEP to aid in the career transfer of aerospace personnel. Findings from the two participating universities are presented under orientation. Their views are of primary importance since they developed the orientation program and were charged under the contract with evaluating it. The discussion of on-the-job development stems from the AEP staff's direct dealings with local governmental hiring authorities.

THE MECHANICS OF ORIENTATION

Contracts were signed with two universities - Massachusetts Institute of Technology and the University of California at Berkeley - to conduct four-week orientation courses and to conduct studies of the reactions of students and their employers to placement in local government.

East Coast participants went to MIT; West Coast to Berkeley. The groups were almost evenly divided (185 at MIT, 187 at UC). The MIT program was called Project ADAPT. The Berkeley program was called the Aerospace Orientation Program (AOP).

The orientation at Berkeley was begun one week later than that at MIT. This afforded an excellent opportunity for the Project Director to anticipate problems that might arise in the later session from the experience of the earlier one.

Extensive reports by each of the universities on characteristics of the students; curricula; participant reaction to the courses, and recommendations concerning AEP, are contained in separate volumes of this report.

University faculty with experience in mid-career training and members of the Sloan Urban Executives Program, among others, advised the AEP to build the orientation courses on the following premises:

--that engineers by background and experience are capable of functioning as generalists as well as technicians.

--that the students have a capacity for mastering unfamiliar fields of knowledge and have achieved a middle-management level of experience.

--that these professionals had become adapt at learning from experience, applications and cases, rather than from textbooks.

So a curriculum was established with the primary aim of sensitizing students to urban problems they would be likely to encounter working in local government and to familiarize them with all facets of governmental operation: the actors, structure, language dynamics and politics. The month-long course began August 1, 1971, at MIT, a week later at UC.

The course at both universities were built around panel discussions and lectures by faculty and guests, gaming sessions on simulated urban circumstances, field trips to cities, small group discussions (rap sessions) and selected readings.

At UC the senior faculty members had both political experience and academic positions. Four of the six had served as Mayors. The entire faculty had considerable civic experience. Academic Dean was Arthur Naftalin, Former Mayor of Minneapolis.

Among guest lecturers and panelists were Mayor Joseph Alioto of San Francisco; Mayor Carl Stokes of Cleveland; Sociologist Ida Hoos; Urban Planner Marshal Kaplan.

The MIT program was conducted by faculty of the Department of Urban Studies and Planning. Students had the opportunity to hear lectures and discussions by Dr. Jerome Weisner, MIT President and former Presidential Science Adviser; Sociologist Nathan Glazer; Urbanologists Paul Davidoff and Adam Yarmolinsky; and David Grossman, Assistant to the Mayor of New York, among others.

Both participating universities in their attached reports have concluded that an orientation course was a desirable element of the Aerospace Employment Project.

FINDINGS: MASSACHUSETTS INSTITUTE OF TECHNOLOGY

The MIT report said: Persons who completed the ADAPT orientation were five times more likely to enter public service as re-employed aerospace and defense professionals than those who did not participate; moreover, of the participants who found re-employment in the private sector--30% of the total enrollment are working on projects that are related to the urban issues, problems and topics that were the focus of the orientation. Regardless of current employment status--public, private or unemployed--better than one in four have increased their involvement in local civic affairs--from seeking elective office to voluntary work with local governments and action groups.

MIT found that while participants now in public service felt the orientation to be extremely helpful, "*predictably, those now in generalist and executive staff positions would have liked more emphasis on topics such as bureaucracy and organization; those now working in more clearly circumscribed areas would have liked emphasis in the functional specialties for which they now have some responsibility.*"

About half the students favored lectures and panel discussions and the rest preferred such "hands-on" experience as field trips and gaming simulation. *"This justifies continued use of a varied rather than a uniform orientation program."*

From surveys, MIT learned that participants felt one of the most valuable aspects of orientation was getting a feel for politics and becoming familiar with the language of government. The university recommends more role-playing to enhance the participant's sensitivity to the interpersonal relationships "the small "p" politics of agency life that will be encountered in such positions.

MIT commented on the increased activity in civic affairs demonstrated by even those participants who returned to private employment (or even by unemployed). The program also found this a common phenomenon. A typical letter from a participant who found work with an automobile company said:

> *"I still appreciate last summer's training as I am a school board member with the attendant budgeting and political problems. The broad exposure to the political arena and how things happen is particularly useful to me."*

FINDINGS: UNIVERSITY OF CALIFORNIA AT BERKELEY

The following is a summary of findings by the University of California concerning orientation. Data upon which these conclusions are based are included in the university's report.

--Orientation had little influence on participants' perception of the importance of job goals.

--After orientation participants were more favorably inclined toward government employment. However, images of State and local government tended to be more negative.

--The orientation program produced more positive self-images in participants.

--Participants felt the program accomplished its stated goals. They particularly liked rap sessions, panel discussions and other specific information dissemination. They liked gaming least.

--Participants felt that the lecturers and staff were a crucial factor in the success of the project.

--There was consensus that the orientation course had instilled or increased positive interest in government work.

Berkeley students replied that 51 percent had "greatly" increased their sensitivity to problems of local government through the program, 34 percent felt it "largely" had; only 4 percent indicated little benefit. (In line with these percentages, 94 percent indicated they would seek public jobs; 6 percent said they would not).

OPERATIONAL ADVANTAGES

AEP staff also found *operational values* in the orientation that are not covered in the universities' reports.

Project Staff and the Candidates: The immediate advantage was the opportunity for personnel running the project to meet the participants. Through formal lectures by the Project Director, and through informal meetings, participants gained insight into the project's goals and its method of operation. They learned what they should be doing to prepare themselves for employment, what they could expect staff to do in identifying jobs and arranging interviews.

Related Project Logistics: Many logistical problems could be handled expeditiously at the orientation site--such matters as travel money for interviews, unemployment compensation, even family problems. Personal contact at orientation was the staff leaders' first opportunity to learn more about the problems and attitudes of the people with whom they would be interacting in the coming months.

Participant Morale: Participants later indicated that the orientation bolstered their morale, not only by introducing them to (and clarifying) a specific career for which they were qualified but also because they met other professionals with similar backgrounds who shared many of their current problems. Particularly in California, where all students lived on campus, an esprit de corps developed. This led to the formation of self-help groups (See Chapter IV) and to continuing cooperation among participants. This has produced some placements when participants who were hired recommended others in the project.

Participants have also reported that the orientation was valuable in teaching them the language of government and in correcting misimpressions and preconceptions.

Orientation as a "Reflective Setting": Many participants knew little of the realities of local government when they applied for the project. They had the opportunity to examine the kinds of positions that actually exist and to evaluate their own capacity to fill various positions. It gave them an idea of whether their talents would be transferable. In some cases, the orientation led participants to recognize that they were not truly interested in working in the public sector. These later concentrated on gaining employment in the private sector; in other words, orientation allowed participants to focus on the particular, realistic aspects of local government instead of vague and abstract conceptions they may have had prior to joining the project.

Employer Reactions: Many employers were impressed by the orientation syllabus; others reported favorably on how knowledgeable about urban problems participants seemed when interviewed. When some employers understandably seemed skeptical about how much could be learned about government administration in one month, staff pointed out that these professionals had spent their careers learning rapidly about areas that had been previously unexplored; that they could turn their unusual abilities to absorbing complicated material on the problems of cities. Few middle-management employees in local government had taken such extensive courses in urban problems.

Job Interviews for Participants: Some job interviews were arranged for the final week of the orientation session. At that early point in the project, only a few job openings had been developed by AEP staff. Consequently, this undertaking, although well meant, had many drawbacks. There was a sharp decline in morale for those not receiving job offers - a few even "crashed" interviews to plead their case. Unless a project contemplates some sort of "job fair" where every participant is guaranteed an interview (although not a job necessarily), interview planning must consider the sensitivities of the participants. The orientation provides a setting where a potential employer can interview a broad selection of candidates. But those who are ignored are likely to be discouraged early on about what the project is going to do for them. And an employer who has come to fill two or three positions does not want to spend time interviewing 30 to 40 applicants for each job.

ON-THE-JOB DEVELOPMENT

AEP sought to determine whether financial assistance for on the job development is necessary to aid in the transfer of aerospace and defense professionals to public jobs.

PURPOSE AND PROCEDURE FOR OJD DISBURSEMENT

Under the terms of the contract establishing AEP, the project was authorized to offer a one-time payment of $1,000 to each public employer for each participant hired. The payment was to be used to reimburse employers for break-in costs inherent in hiring persons for jobs for which they might not be fully qualified on the outset.

AEP established the following procedure for disbursement of these funds: upon appointing an AEP participant to a position, the public employer wrote the Project Director explaining the nature of the job, its title and duties. If funds were needed for on-the-job development, the employer explained such needs. If the Director was satisfied with the need for the funds, the project would pay $500 immediately and $500 more at the end of three months' employment.

OJD FUND REQUESTS

The $1,000 grant was not designed as an incentive for hiring AEP participants. However, interviews with both employers and employees indicate that in some cases, all other factors being equal, the on-the-job development grant tipped the scales in favor of the AEP applicant.

On the other hand, approximately half (52.7%) the jurisdictions hiring AEP participants have not requested the on-the-job development grant. It appears that in many cases where application for funds was made that the additional funds did influence the hiring of the participants.

TABLE 7

ON THE JOB DEVELOPMENT FUNDS

TOTAL ELIGIBLE PUBLIC EMPLOYERS:			186
Total from *East Coast:*	76	or	40.8%
Number Requesting OJD Funds:	40		
Percent of **Total East:**	52.6%		
Total from *West Coast:*	110		59.2%
Number Requesting OJD Funds:	48		
Percent of Total West:	43.6%		
Total Requesting OJD Funds:	88	or	47.3% (Of total eligible)

EXAMPLES OF OJD UTILIZATION

No special pattern emerged about either the type of jurisdiction which requested the money or the type of job it went for. Approximately half of the State job placements requested the funds.

No complaints were received that the funds were not adequate for their intended purpose.

Some who did not request it claimed too much paperwork would be required to get the $1,000 in the proper department applied to its designed purpose (in some jurisdictions, such payment would go into a general fund, necessitating complicated procedures to effect its proper allocation).

Examples of how OJD funds were utilized in some jurisdictions are presented below.

Applied Science Programmer:

One participant had been employed by a State Department of Public Works for six months. He was assigned to the Computer Systems Department within the agency. Most of his experience had been in computers, specifically in programming, which was now being applied to urban planning. His technical skills were more than adequate for the job. Yet some form of on-the-job training was necessary so that his computer background could be adapted to the field of urban planning, as designed by the Department. His training consisted of weekly seminars conducted by his division head on job control language which is basically different from the computer languages used in his previous aerospace job. The training has aided him in terms of debugging and revising a program analysis of excess land use studies for rights-of-way in the State.

Pollution Environmentalist:

One participant had been hired in a growing Southern California community which had recently incorporated. His position was Environmentalist for the Port Authority controlled by the city. Although he was located within the central administration of the government, his job was basically technical, requiring extensive scientific research. During his first seven months, he conducted several impact studies on the environment and communications. His training for the job consisted of continuous daily sessions on the design and implementation of impact studies with key department heads to learn their requirements for planning and development.

Administrative Assistant:

Another AEP participant had been hired within the central administration of a medium size city to assist the city manager.

His position of administrative assistant covered a broad spectrum of assignments. However, his primary task was to concentrate on the operations of the Personnel Department. The city provided specialized training for him in the form of related reading materials, sessions with key personnel within the Department, review of local and Federal legislation on manpower, and on-the-job training in labor relations.

Administrative Analyst:

One AEP participant was hired as an Administrative Analyst as one member of a team effort for a large Western county. He was assigned to review and analyze the overall management of seventy (70) departments with 77,000 employees. (The Engineering Environmental Service Team is in charge of the management and budget policy analysis for the county). The AEP employee possessed management experience but required formal training geared to the specific operations of this county government. Specific training courses on "Staff Improvement Programs" were initiated by the Departmental Training Officer once a week for a two-month period. The purpose of the courses was to sensitize the study team to current management practices and what was desirable: effective and efficient management at lower costs.

Intermediate Planner:

A medium size city hired an AEP participant as a planner for the city planning department. His assignments centered on research and development tasks. Eventually his role will be environmental analyst. Continuous training was provided by the city at the University of California at San Diego. The AEP employee was enrolled in a program on environmental design. The employer chose this form of OJD rather than in-house training. His training through the AEP orientation and environmental courses taken at UC has enabled him to conduct studies on noise standards, research zoning practices, and to review various housing, fire, and sanitation codes for the county. This person had many years experience in research design, but had to focus on specific local level problems; noise control and environmental analysis.

Planner:

One city hired an AEP participant as a planner within its general planning department. He was assigned for seven months to provide information (through research and investigation) for the city manager on an updated basis. His industrial engineering background proved helpful in applying his skills to municipal standards. The AEP employee spent several hours a day with key municipal employees. The city scheduled his training periods to allow him to continue his work in developing appropriate measurements for various research projects.

Environmental Specialist: One AEP participant, hired in a county flood control district, was assigned to flood control and water conservation for the county with special emphasis on the coordination of laws pertaining to the environment. Orientation focused on trends in environmental control techniques. Special seminars were conducted which concentrated on approaches to coordinating all departmental levels of government.

Assistant Administrative Analyst: One county loaned its key planning personnel to a non-profit economic development corporation. One AEP participant had been hired to work with the research division of the corporation to improve the general economic health of the county. The candidate was skilled in report writing and analysis of project operations. His training centered on real estate and industrial development to enable him to analyze local economic conditions. The entire project was new to this government. The AEP candidate prepared a 'state of the art' digest which furthered the project's innovative potential.

Coordinating Assistant Manager,
Public Employment Program (PEP):

Because of his planning and management background, one AEP participant was hired to work in the PEP division of a city's Department of Human Resources. His duties were to manage the operational programs and generate future programs, from planning stages to implementation. His responsibilities included supervising and training senior clerks and trainees on administrative control of PEP, devising techniques for program control, preparing Department of Labor reports and reporting to the city manager on a regular basis. He also coordinated all activities with the budget and audit departments. His on-the-job training focused on the operations of all city departments and their interrelationships. Training sessions were also conducted on civil service requirements and related personnel examinations. He also received orientation about federally funded manpower programs.

CONCLUSION

ORIENTATION

(1) From the universities' reports and the Project Director's experience, it appears that the orientation was a useful and desirable element of the AEP.

(2) The orientation stimulated participants' interest in working in local government (even to the extent that some held off taking private sector jobs, even though they were unemployed while waiting for public jobs to open).

(3) It provided participants with a special educational background that other applicants for public jobs often did not have--and therefore made them more attractive to hiring authorities.

(4) Orientation eased the adjustment to a new environment for those who obtained employment in the public service.

(5) As an alternative to regular on-going manpower training programs, AEP orientation programs proved a satisfactory approach for technical professionals committed to mid-career adjustments.

(6) The curriculum designed to 'sensitize' and 'familiarize' the candidates was appropriate since the majority now

claim they have a 'feel for politics' and are knowledgeable of the 'language of government'.

(7) The orientation provided a "reflective" setting for evaluating one's own capacity and ability to fill various local governmental positions - to learn where one might fit in.

ON THE JOB DEVELOPMENT

(1) Any financial assistance to local government facilitates hiring of non-residents.

(2) The OJD fund allotment provided by AEP is an advantageous method of supplying financial assistance to local governments because: a) cities are free to determine whether there is a need for this type of training fund, and b) these funds can be obtained with little or no "red tape".

(3) OJD funds work to increase consideration of candidates by employers because it 'sets them apart' from other applicants.

(4) More than half the eligible public employers (52.7%) determined that on-the-job development (a form of job training) was not essential to the hiring of AEP participants. This indicates the availability of OJD funds did not influence the hiring of the participant: these jurisdictions were obviously satisfied

with the applicant's qualifications and felt that the one-month orientation would be sufficient.

CHAPTER IV

THE DELIVERY NETWORK

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THE DELIVERY NETWORK

The third objective of the Aerospace Employment Project was concerned with an inter-area network designed to service local government manpower needs. Network services took the form of candidate selection for project participation, development of jobs in State and local governments, and placement.

The objective was:

> *To determine whether a central organization of representatives of State and local governments can develop an effective inter-area network in cooperation with State Employment Services agencies and professional associations for the selection, development and placement of special staff to fill primarily the Model City capacity-building needs of State and local government.*

The National League of Cities and the U.S. Conference of Mayors (NLC/USCM) acting as the central organization of municipal governments and representatives of those governments, developed and coordinated all network activities. It sought to develop a cooperative network that could accomplish the project's objectives. What elements would be required to form such a network? How extensive should the network be?

Would this inter-area network assist in strengthening the capacity of municipal governments?

The following discussion focuses on the effectiveness of the network in the selection, development and placement of project participants in local government. The chapter discusses roles of the prime network elements, AEP promotional efforts, and the functional aspects of the delivery network.

PRIME ELEMENTS OF THE NETWORK

The network included selected State Employment Services, professional associations, participants, self-help groups, five State Municipal Leagues, and the National League of Cities and the U.S. Conference of Mayors. Those groups cooperated in recruitment and selection of participants, in identifying job opportunities and in bringing together hiring authorities and participants.

STATE EMPLOYMENT SERVICES

During the initial recruitment and screening phase, selected State Employment Services were asked for assistance, office space and manpower, as well as lists of unemployed aerospace engineers and scientists in the 10 target areas.

In addition, the ES aided recruitment by mailing information sheets about the project. Unemployed engineers and scientists who were interested in participating completed application forms for local ES processing. Of the universe selected, 38 percent heard about the project through the ES.

The SES units in the target areas made available space to conduct the oral interviews. Representatives from SES were called upon to act as panelists on the selection boards.

In four target areas, the ES provided office space for the candidates during the job development and placement phase. These offices acted as centers of contact and information for self-help groups in the Boston, San Diego, Seattle and Wichita areas.

In some areas, local ES managers cooperated by speaking to public officials and by providing the project with contacts in various State departments. In San Diego and San Jose, the ES hired several participants as consultants.

PUBLIC PERSONNEL ASSOCIATION

The Public Personnel Association participated in the project during the initial recruitment and selection phase. Personnel specialists developed general job classifications and functional categories that were used to align candidate skills with job requirements. PPA representatives were assigned to each oral panel to act as advisors and coordinators to the groups.

The Public Personnel Association assisted in job development. AEP representatives were invited to attend PPA's annual meeting and were provided with space for a display and for interviews during the convention. PPA urged personnel directors in local governments to cooperate with AEP.

In addition, the Washington, D. C. representative for PPA acted as a consultant to the project and participated in seminars for self-help group leaders on how to be interviewed, write resumes and present oneself to prospective employers.

PUBLIC INTEREST GROUPS

State-County-City Service Center (SCCSC): Initial contacts with State and local governments were made by the State-County-City Service Center (SCCSC), an organization that coordinates efforts of the Council of State Governments, the National Governors Conference, the International City Management Association and the National Association of Counties.

The AEP subcontracted with SCCSC on a short-term basis to provide a linkage to persons with operational responsibility for carrying out the project and to contact and enlist the support of governors, county executives, and city managers by emphasizing the availability of new management talent who could deal effectively with the States' and localities' critical problems.

To promote the project during its early stages, Service Center staff prepared news articles which were to be printed in various publications of the public interest groups. *"Your County Can Tap a Unique Manpower Pool"* appeared in the June 25, 1971 issue of NACO NEWS & Views, a weekly newspaper with a circulation of 20,000 for the National Association of Counties. Another article appeared in the July 19, 1971 issue of State Headline, a bi-weekly newsletter which is distributed to all 50 Governors and 1,800 other State officials, as well as State legislatures.

The Service Center also prepared letters for each association's executive director to explain the project to his membership. These letters included job development forms, a two-page description of the project, and a copy of *Typical Job Titles in State and Local Government.* The packages were sent to almost 600 county officials (45 elected county executives, 240 county administrators, and 290 county board chairmen of counties with populations exceeding 100,000). A similar package was sent to the 50 governors and 50 State directors of personnel agencies.

SCCSC reached approximately 700 local government officials not included in the membership of the National League of Cities and the U.S. Conference of Mayors. Their promotional efforts increased local awareness of the project but did not produce the desired effect in getting jobs for the candidates. Experience proved that mass mailings were the least effective way of identifying job opportunities in local government. Yet, without initial mailings, many officials would have been totally unfamiliar with the project and its objectives.

STATE MUNICIPAL LEAGUES

Municipal Leagues in Georgia, Michigan, Ohio, Pennsylvania and Texas surveyed State and local governments for potential job placements, particularly in Model Cities capacity-building areas. They were also asked to assist in candidate final screening in other states.

State leagues were expected to have first-hand knowledge of public employment potential within their States and to function effectively as the project's agents or representatives in those States.

The State Municipal leagues were expected to perform the following functions:

---acting as liaison to the communities within the State,

---distributing promotional and informational materials about AEP,

---providing listings of key governmental organizations and agency hiring authorities for job development purposes and initiating contacts with those authorities,

---representing AEP at local conventions and conferences of potential public employers, setting up displays and promoting the project,

---providing information on hiring restrictions and regulations within their States,

---identifying job opportunities and informing AEP headquarters, and

---following through on job orders matched by the national AEP staff.

Although none of the five State leagues performed all these roles, several were helpful in the job development process. State Leagues screened all cities and towns throughout their State which indicated interest in learning about the project and which had job opportunities. As a linkage to the job development process, the leagues identified approximately 80 job openings. Many jobs were located in small suburban communities. Initially candidates were hesitant to accept a position in smaller metropolitan areas. Salary levels were lower than the participants would accept. The State Leagues were able to report economic conditions in their States to the project. Larger metropolitan areas surveyed by the State Leagues were usually under severe budgetary restraints and had few jobs to offer. High local unemployment conditions forced a tightening of residency requirements.

In one State, a meeting was convened, under the sponsorship of the Governor, for all personnel officers of local government: AEP was explained by State League and AEP representatives, and the officers were encouraged to submit job orders.

At one point, over 130 State government Civil Service vacancies were identified in one State. Most of these positions were technical in nature and had been vacant for an average of six months. However, State budgetary limitations reduced to 30 the vacancies to be filled.

In another State, the League sent returnable postcards to each jurisdiction, asking for a description of available jobs and indicating the goals of the aerospace project.

In one State, the League reported that because of budget limitations in major cities, hiring had been frozen; that priority in hiring was being given to minority groups; and, because of unemployment, local governments would hire only residents. None of the project participants were residents.

Another State League reported on a problem which was encountered throughout the job development process: "*Local governments had some confusion as to what the priorities for employment in the public sector should be--returning Viet Nam veterans, the handicapped, the poor, or aerospace personnel.*"

The five State Leagues worked closely with the AEP headquarters to turn identified job slots into job placements for the candidates. Their efforts produced only a dozen placements. While this may tend to indicate failure on the part of the State Leagues to produce jobs, it does not reflect other important activities which helped to promote the project.

It was found that for State Municipal Leagues to participate effectively in the project:

--they must have a strong organization and sufficient staffing to take on a burden outside their customary work.

--they should be located in States with reasonably low unemployment rates and with a considerable number of job opportunities in local government; and

--they should be thoroughly briefed on the objectives of the project, and types of jobs being sought; they should be assigned specific tasks.

SELF-HELP GROUPS

Self-help groups formed by project participants were the most effective element in the job development phase, and produced lasting benefits.

Self-help groups encouraged participants to learn about job opportunities in their areas. Self-help groups also helped sustain participants' morale during a frequently lengthy period of waiting for placement.

With the exception of Florida (where participants were too dispersed to form a group), self-help groups were formed in each of the target areas.

These groups have maintained member interest in finding employment in the public sector--in addition to broadening members' knowledge of the problems of local government. Members also counseled one another on resume writing, job interview techniques and other job search techniques.

One of the outstanding features of these self-help groups has been that members who have found jobs often remain active helping others who had not yet made it. These successful AEP "graduates" continue to explore employment possibilities from a vantage point within local government.

Two seminars were held in Washington where self-help group leaders shared their findings and reactions and evaluated the project.

Groups formed interviewing teams to talk to local officials, or assigned individual members to keep on top of the job situation in various areas. They attempted to match members' qualifications with available openings.

The groups generated media coverage on their activities. Many members participated in meetings and conventions of local officials. Members were encouraged by the group to join social and civic organizations to broaden contacts.

The self-help groups developed into a strong link in the communications and resources network of the project. They provided information for the AEP monthly newsletter which shared their findings with other groups. They were a focal point for staff visits in the field, and they also maintained frequent contact with AEP headquarters.

Here are examples of what some of the self-help groups have done:

San Diego had a representative on the local area manpower committee which meets monthly. Contacts were established with the media and with county, city and school district representatives. The group worked closely with the area's Experience Unlimited group, housed at the local Human Resource Development Center.

San Jose's group produced a brochure that was distributed to local government conferences and meetings. Committees such as public contact, public relations were created and staffed.

Boston's group ran an office in the Route 128 Employment office.

In Seattle, the AEP group joined forces with the area Volunteer Engineer, Scientist and Technician program and Talent Plus program. This group had an executive board that met regularly; the employed members contributed toward the self-help group's efforts.

Wichita also worked closely with the local VEST program, in addition to other activities.

Several groups obtained lists of EEA jobs throughout their area. They contacted local government hiring authorities who alerted group members when openings occurred.

One group began incorporating as a clearinghouse or employment agency, to market the skills of project participants.

In some areas, wives also formed groups. Since the problems of unemployment and relocation affect the entire family, this sustained the group's morale.

CONCLUSION: The AEP participants organized the most effective link in the communication and job development network for this project. The project benefited from their intelligence, capability and motivation.

It was found that once participants engaged in these activities members' interest was maintained even after they found employment. Harrowing though the experience of prolonged unemployment was, it heightened the responsibility of those who underwent it and prevailed.

AEP PROMOTIONAL EFFORTS

Selling the Project to Local Governments:

Well over 1,000 cities, counties and States were directly contacted by the project. More than 300 jurisdictions actively participated in the project by submitting job orders, reviewing applications and interviewing participants. As of the end of April, 1972, participants in the project had been hired by 11 States and the District of Columbia, by 76 cities and by 13 counties. Seventeen jurisdictions hired more than one participant.

Acceptability of NLC/USCM:

The acceptability of NLC/USCM was a major factor in getting an initial hearing for the project with civic executives at many levels. This reputation also helped participants who applied on their own when the officials sought references. (In some cases, this became critical: because of the mobility and volatility of the aerospace and defense industries, often persons given as references had moved to another contract or had become unemployed themselves). Consequently, many potential employers relied on the project's extensive screening of the participants prior to accepting them.

Promotional activities by AEP were maintained throughout the project through a constant effort to interest local governments. Once self-help groups were established, they proved useful in informing the staff of potential markets to contact and of opportunities to help participants get hired.

The task of job development became less difficult as the project gained momentum. In the beginning, project staff had to initiate all contacts. As participants were hired and AEP began to draw national media attention, a number of local governments would volunteer job orders and call AEP headquarters to learn how to utilize this source of professional manpower.

Some governments, that gave negative responses initially because of hiring restrictions, worked to ease employment barriers. Some even created jobs around candidates' abilities. Job specifications were redefined.

Types of Promotional Initiatives:

Experimental approaches were taken in what proved to be a flexible promotional campaign: those that worked were emphasized, less successful ones were abandoned.

The major part of this task was convincing hiring authorities that project participants had the motivation, capability and adaptability to fill the job opening. *Personal contacts were the most effective means of promotion.*

Articles: Articles in professional journals aimed at Urban management professionals achieved initial attention for the project. These include *Nation's Cities*, *Change*, *Technological Review*, *ASPA*, *(American Society for Public Administration)* *Journal* and the *Public Personnel Association Journal*. Articles in newspapers in cities in the target areas were helpful and an article on the project in *NEWSWEEK* Magazine, and *The New York Times*, widely distributed by AEP, indicated the national scope and recognition of the project. Television interview appearances by the Project Director drew a large number of queries about the project from public employers.

Letters: Letters to civic executives drawn from lists of local government public interest groups introduced the project and its goals, but did not draw a large response in terms of job opportunities.

Conferences and Meetings: More successful, probably because it afforded a chance for face-to-face discussion, was AEP attendance at conferences and meeting of organizations such as the Conference of Mayors, Public Personnel Association and National League of Cities. Exhibition booths were manned during these conventions where many potential employers were gathered. Brochures describing AEP were widely distributed, resulting in a number of inquiries.

In addition, potential employers were invited to meetings of participants in the project; if conferences of urban officials were held in a central location, the project made participants available for interviews there.

Campus Interviews: Although there were not many interviews arranged on campus during orientation (and their main purpose was to maintain morale), those that were held proved fruitful. Approximately a dozen AEP participants were hired through these interviews.

Gubernatorial Contacts: Telephone calls were made to most of the 50 States' governors, directly, to inform them of the project and to seek leads on available jobs within the State.

Direct Contacts with Local Hiring Authorities: The most productive method of job development was personal canvassing of local governments within the target areas by the project staff. Although AEP was seeking job opportunities throughout the nation, as a practical matter, it was much easier to persuade an employer to hire a local resident. Sometimes this was a requirement of the position, but always it was more justifiable politically to hire one's "own" unemployed if at all possible.

Another advantage of personal contact over written material: the AEP representative had an opportunity to suggest to the potential employer how a participant could be successfully used to fill an existing vacancy, even though the participant's qualifications did not exactly fit the specifications of the position. (Of course, if they did, as in the case of several civil engineers, there was no reluctance on the employer's part.)

FUNCTIONAL ASPECTS OF THE NETWORK

Recruitment:

To select a test universe of about 400 from the general target population of approximately 10,000 project staff worked closely with local State Employment Services (SES), and utilized the listings of the National Registry for Scientists and Engineers.

Letters from the Project Director announcing the goals of AEP and inviting applications to participate were sent to some 10,000 unemployed and underemployed aerospace and defense professionals in the 10 regions. Potential applicants were identified from SES and Registry lists.

Efforts were also made by the AEP staff to reach the intended audience through articles in professional and general publications.

Of course, not everyone who might be eligible for the project was carried on ES or Registry lists. Many of them did not associate State Employment Services with the comparatively high-salaried positions they sought; others had registered with private employment agencies only.

When AEP was in the recruiting phase, the National Registry was a relatively new service; many potential applicants had not been reached yet and therefore were not listed.

On the West Coast, Experience Unlimited, a contractor of the Human Resource Department of California (associated with SES) also provided names and made contacts.

Those finally selected to participate in the project were asked how they had learned about AEP. Some 38 percent had learned about AEP through the SES while another 18 percent had been reached by various media sources. (See Table 8)

TABLE 8

HOW THOSE SELECTED LEARNED ABOUT AEP

SES	140	(38%)
The Media	65	(18%)
Experience Unlimited	43	(12%)
Letters from NLC/USCM	39	(11%)
Other Sources	35	(9%)
Friends	11	(3%)
No Response	38	(10%)

SELECTION

Soft Screening: Expressions of interest in participating in the Aerospace Employment Program were received from 6,593 aerospace or defense professionals.

Here's what AEP was seeking in participants during the initial screening phase:

(1) Professionals eligible for TMRP assistance. Although AEP was not itself a part of the TMRP, that would be the source of funds for participants to be reimbursed for travel to job interviews and would assist in relocation costs.

(2) Persons with a genuine interest in changing careers to the public sector.

(3) Professionals willing to relocate to another city if offered a suitable position.

(4) Applicants willing to accept the salary level prevalent in local government positions for which they would be considered.

AEP engaged the Public Personnel Association to assist in the initial (soft) screening of potential candidates. The organization was chosen for its knowledge of types of employment in the public sector and the requirements involved, as well as for its ability to evaluate the potential of highly technical applications.

Another goal of the initial screening process was to identify some 200 applicants who appeared to have the potential for being placed directly in jobs in the public sector without the need for orientation. It was initially hoped that the project could place these 200 professionals by the time the other 400 had completed orientation.

The urgent tasks of selecting candidates for the main project, arranging with the universities for the orientation, locating and generating employment opportunities in the public sector occupied the full-time efforts of project staff. Therefore, in the first quarterly report to the Federal sponsors of AEP, the Project Director recommended that the original work statement and contract be amended to de-emphasize (and later delete) placement efforts for the 200 professionals. This recommendation was accepted. In light of subsequent experience, direct placement would certainly have been more difficult than placing the 400 participants selected to attend the orientation.

The purpose of the soft-screening process was to winnow out from more than 6,500 potential candidates the 1,000 who seemed most promising (within limits of proportional representation from each of the 10 geographical target areas).

These 1,000 candidates were invited to attend oral interviews in their area.

Hard Screening - Oral Panels: AEP sought as panel members persons with broad experience in personnel, engineering, or local government. The goal was to have five panelists, representing a variety of expertise, on each of the panels in the target area cities.

Performance of panelists varied from target area to target area, although the required disciplines were represented in each panel. In those cases where fewer than five panelists could be present at the initial round of interviewing on any given panel, the same members--with no additions--were retained for the entire interviewing process by that panel.

The project found that panels operate most smoothly and effectively if they are provided with thorough information about the project. Furthermore, it is helpful if panelists are provided with complete, concise portfolios on each of the candidates they will interview. In some cases, it was found, panelists were uncertain exactly what the project was seeking of candidates. In other cases, the candidates' resume and other application data were of a highly technical nature, making evaluation of his experience difficult for a panel member who was an expert in urban government, not engineering, for example.

Project staff devised rating forms for use by panel members listing such criteria as:

(1)	Demonstrated interest in community affairs and the public sector	WEIGHT: 20 pts.
(2)	Managerial skills, work experience in directing employees	WEIGHT: 15 pts.
(3)	Demonstrated leadership abilities, extracurricular involvement (professional societies, universities	WEIGHT: 15 pts.
(4)	Innovative thinking, imagination and insight	WEIGHT: 10 pts.
(5)	Attitude, manner ability to establish rapport, enthusiasm	WEIGHT: 10 pts.
(6)	Ability to comprehend, perception, responsiveness	WEIGHT: 10 pts.
(7)	Ability to communicate ideas	WEIGHT: 10 pts.
(8)	Appearance, physical condition	WEIGHT: 10 pts.

These factors were weighted along with experience, education and potential for skill transfer to urban needs. Panelists were instructed to weigh each factor and then arrive at an overall"average" rating of each candidate based on their personal impressions. Panels were then requested to rank applicants from that target area.

The objective of the panels was to select from the 1,000 applicants the final universe of 400 participants. They were also instructed to identify "alternates," in case a chosen participant dropped out of the project for any reason. Each panel was asked to select approximately one alternate for each five participants they chose.

Some panels did not select as high a percentage of alternates as requested, resulting in a final universe (by orientation time) of 377 instead of 400.

As would be expected, there was a certain amount of "self-screening" by candidates throughout the project. Some acquired jobs after initially expressing interest; some never showed for their oral interviews; others changed their minds about relocation or the minimum salary they would accept.

The total recruitment and selection period lasted 26 calendar days. Project staff feel this was too short a period of time in which to:

-- select and carefully screen panel members;

-- prepare and distribute complete project materials to applicants and panel members;

-- thoroughly check candidates' references;

-- develop a system of job coding that would permit candidates to be categorized according to their strongest qualifications.

Despite some of the drawbacks of the oral panel interview system, the average candidate profile in each of the regions was very similar. Furthermore, there was a direct relationship between scores given candidates by the panels and their eventual placement.

Table 9 gives the average oral panels scores for all participants (by East and West Coast classifications) and compares participants placed in the public and private sectors.

TABLE 9

ORAL PANEL SCORES

PARTICIPANTS	AVERAGE SCORES	WEST COAST	EAST COAST	PLACEMENTS	
				Public	Private
All Participants	78.7	77.3	80.8	-	-
All Placements	79.5	-	-	79.4	79.6
All Remaining Unemployed	77.6	76.9	78.5	-	-
All West Coast Placements	72.4	-	-	77.9	66.9
All East Coast Placements	81.7	-	-	81.5	82.0

Scores by Target Areas: Oral scores suggest a positive correlation between high oral panel scores and high placement rates, in nine of the 10 areas.

In one area the project staff believes that elements of personal friendship and long personal acquaintanceship between candidates and panelists may have affected validity of the process. This area produced the highest panel scores and the lowest placement rate. Table 10 provides information on oral panel scores for all participants and public/private placements by target area.

In eight target areas, the oral scores for those hired in public sector was higher than the average for all AEP participants. In two others, it was the same.

For private sector placements, the average oral panel rating was slightly higher than for those placed in the public sector. In four, it was higher; in the remaining areas, the same.

Scores by Public and Private Placements: The average panel rating for all public sector placements was 79.4 compared to 78.3 for the universe. The average rating for private placements was 79.6.

Scores of Remaining Unemployed: The average panel rating given to those participants still unemployed at the end of April, 1972 was 76.8, compared to the average score of all participants of 78.7.

TABLE 10

ORAL PANEL SCORES BY TARGET AREAS

As of April 30, 1972

TARGET AREA	OVERALL PLACEMENT RATE	SCORES: All Participants	SCORES: Public	Private
SEATTLE	90%	85.4	86.5	83.9
SAN JOSE	71%	80.6	81.2	80.9
SAN DIEGO	75%	81.7	83.0	82.8
LOS ANGELES	75%	78.5	78.6	78.6
ORANGE COUNTY	100%	74.7	74.7	75.3
WICHITA	75%	63.0	63.7	66.2
BOSTON	69%	76.1	78.2	76.7
LONG ISLAND	75%	73.1	73.1	77.4
HUNTS - VILLE	62%	92.1	91.7	93.7
CAPE KENNEDY	74%	82.0	83.2	80.2
TOTALS:	78%	78.7	79.4	79.6

STATISTICAL CANDIDATE PROFILE

The following table gives profiles of the participants selected, by those who were placed in local government, those who found employment in the private sector, and those unemployed as of April 30, 1972.

TABLE 11

STATISTICAL CANDIDATE PROFILE

PROFILES:	All Participants	Public Placements	Private Placements	Remaining Unemployed
Average Age	47 years	47 years	45 years	47 years
Average Years: Aerospace & Defense	16 years	16 years	16 years	16 years
Average Months Unemployed*	7.5 months	6.3 months	5.6 months	9.1 months
Average Education	BS Engineering	BS Engineering	BS Engineering	BS Engineering
Average Oral Panel Score	78.3 pts.	79.4 pts.	79.6 pts.	77.6 pts.

*At time of acceptance into AEP.

CONCLUSION

(1) A central organization such as NLC/USCM with pre-established linkages with other public interest groups can develop an effective employment network to State and local governments.

(2) The network reached all levels of State and local governments to promote the project and to encourage public officials to participate.

(3) Functional aspects of the project (by the nature of its design) required the establishment of sub-networks in the field to aid in processing of applications, screening potential candidates, canvassing jurisdictions for job development, and sustaining group morale in the 10 target areas.

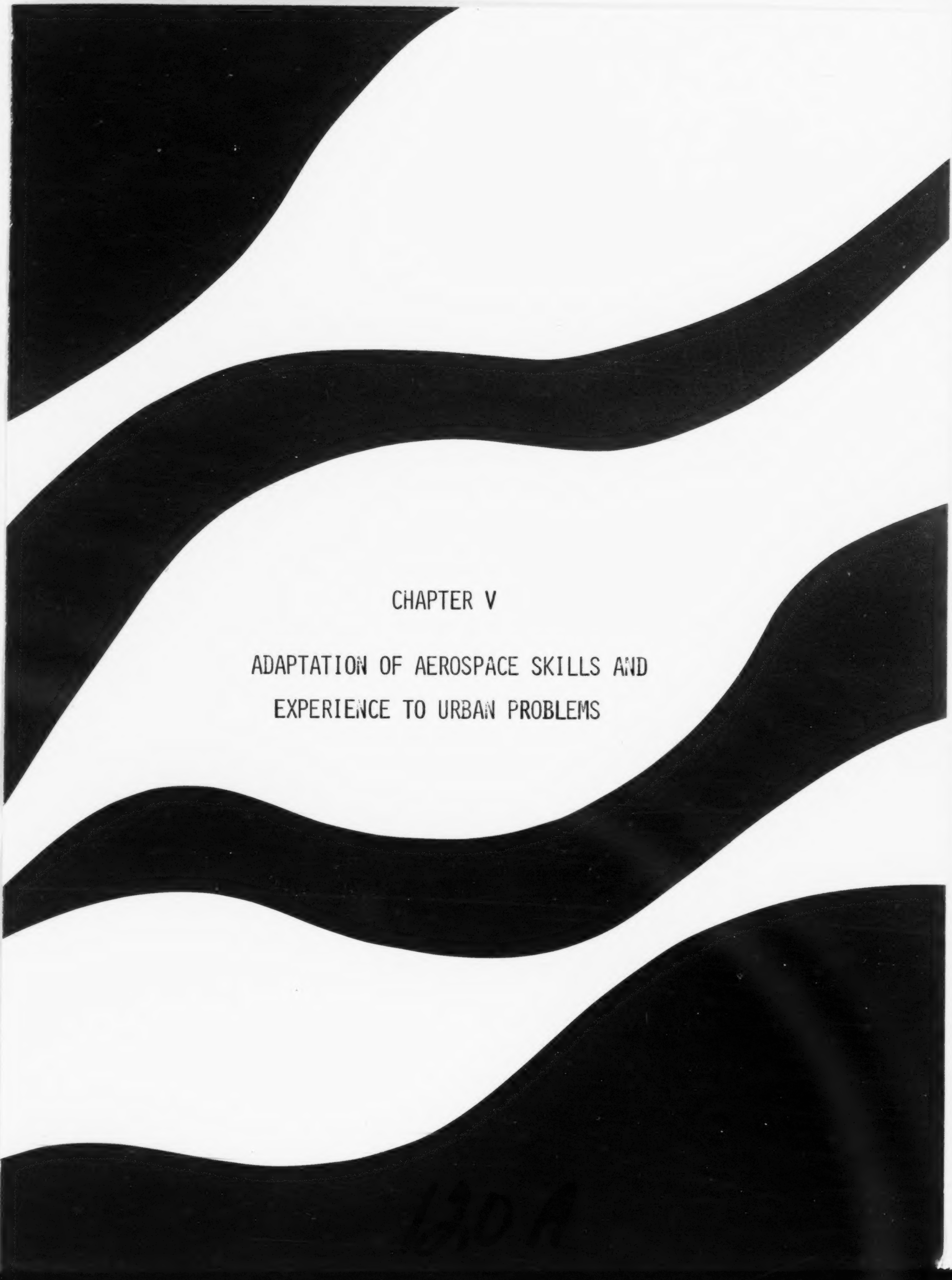
(4) Recruitment of manpower in geographically disconnected areas required a clearly defined plan of action which was consistent throughout and evenly balanced in resource capabilities: SES units were capable of furnishing a high degree of consistency area by area.

(5) Project participants tend to function more effectively in a group situation rather than on an individual basis particularly when they share similar backgrounds and goals. Self-help groups provided an invaluable resource to the project through encouraging mutually supportive member activities and by establishing a base for communications and information in the field.

(6) The project found that outside resources could be helpful in the selection process given sufficient time and preparation.

(7) The State Employment Services was the vehicle through which almost half the AEP participants learned of the project. However, other sources of informing potential participants in a project utilizing highly skilled manpower should also be included in the recruitment process.

(8) Panel interviews provided a reasonably effective method of selecting participants. There was a consistent correlation between the panel's judgment of participants and their eventual placement. Panels should bring expertise in the subject and should be thoroughly briefed for the task. Panels should be allowed time to probe candidates' backgrounds, motivation and reference.



CHAPTER V

ADAPTATION OF AEROSPACE SKILLS AND EXPERIENCE TO URBAN PROBLEMS

CHAPTER V

ADAPTATION OF AEROSPACE SKILLS AND EXPERIENCE TO URBAN PROBLEMS

One of the major tasks AEP undertook was to learn whether the unique skills and long experience in engineering (average 16 years) of the professionals would enable them to bring innovative approaches to pressing urban problems.

The objective was:

> *To determine whether professional skills available from unemployed aerospace and defense engineers and scientists can assist State and local governments in the development and utilization of new techniques in the solution of regional, State, and local problems related to Model City capacity-building needs and objectives including governmental operation and management.*

There were 101 local governments which hired AEP participants. The project sought to determine:

a. The type of aerospace and defense engineers and scientists who would perform most effectively in public service employment.

b. Would on the job performance of AEP participants lead to city-capacity building objectives?

c. Were there certain aerospace-related skills which were more adaptable than others in filling the needs of local government?

d. What types of aerospace management techniques could be applied to local government operations?

e. Could analytical approaches and technological breakthroughs that have been developed in the aerospace and defense industries be brought to bear on the problems of the cities?

Evaluations were conducted when AEP participants had not been on the job long enough to assess their long range contributions to local government. Therefore, some more immediate performance measures were applied to the 186 who recently made a career change to the public sector.

Would AEP participants employed in local government feel that their talents were being properly utilized? Had the performance of participants met the initial expectations of public employers? Are local governments sufficiently flexible to permit new employees to try innovative approaches? Did engineers and scientists need additional training to make a career transfer to local government? Or, were they sufficiently qualified to function effectively on the job with little or no training assistance? In what types of jobs were aerospace personnel placed? What led to successful adaptation? What were some of the difficulties affecting a successful adaptation? When did adaptation occur most frequently?

Preliminary investigations sought to determine the immediate effectiveness of AEP participants' performance in public employment. Comments are presented in this chapter by MIT and UC at Berkeley which were charged with this responsibility. Post-orientation evaluations were based on interviews with employed participants and their immediate supervisors. Several case studies are presented in this chapter to illustrate the types of jobs held by candidates, their work performance, and short range goals which they were able to accomplish.

AEROSPACE SKILLS IN LOCAL GOVERNMENT

Although most of the participants placed in the public sector by AEP were chosen for traditional existing jobs, many required a transfer of skills. Participants placed report that a learning process is inevitable in a new position. However, they say that the learning process is more concerned with the actors and their respective roles than with skills to be acquired. One individual summarized his new experience by saying that what he is doing is "presenting ideas in a different manner." Formerly with NASA, he "did not have to convince [his audience] of his ideas." Now he has learned that he must make a special effort to communicate and to make himself understood. His work (as a water quality specialist) is not altogether different from what he formerly did as a chemical analyst.

Others have said that the crucial factor in a new job is to "learn the ropes as to what the procedures are and go from there." One participant had owned his own consultant business for almost four years and had branched out into management analysis work with heavy emphasis on fiscal control for a large international airline. He is now involved in fiscal management as the Director of Budget and Research for a large southern city. Initially, the personnel director and city manager questioned this person's adaptability to a smaller, more restrictive fiscal environment. Yet, as time progressed, they found him increasingly able to review budgets realistically and make appropriate recommendations through increased exposure to department heads' attitudes. The Director of Budget adapted once he had a chance to become acquainted with the "actors" responsible for city budgetary management and to learn how each ran his shop.

An estimated 24 percent of the participants placed made a major transfer of skills in their new positions. Most of these positions can be considered as "hard" engineering jobs which require a high degree of technical aptitude. These persons are applying their engineering skills in such departments as public works, transportation, sanitation, community affairs, public health, traffic, environmental control and air pollution. Others (58.5 percent) because of their knowledge of computers, data processing, analytical studies, evaluation techniques, and management controls, have had partial transferability of skills on their new jobs. This judgment is based primarily on their occupational and educational experiences compared to their actual job functions in the public sector.

One participant who is currently working in Southern California stated that the skills he brought to the job "were developed over many years long before he went to the aerospace industry." He is now responsible for a criminological laboratory for six cooperating cities serving some 280,000 people. His educational and work experience is in the field of analytical chemical research. Yet much of the knowledge he brings to the job was gained through his own initiative in exploring fields totally unrelated to his background. He now feels equipped to handle the administrative, budgetary, and coordinative roles demanded of him.

A medium size Western city created an Urban Scientist position for an AEP participant. A need existed for more sophisticated, comprehensive assessment of departmental performance levels. A person was needed who could methodically survey a varied set of disciplines. Initially the city was unsure of what work needed to be done. One of the AEP participants had the qualifications to solve the problem. The position of Urban Scientist was created especially for him, the only one of its kind in the city.

Model Cities: Under the Demonstration Cities and Metropolitan Development Act of 1966 (the Model Cities Program), local governments were given a mandate to design and implement planning that is both long-range and comprehensive, involving several disciplines (for example, physical, social, economic and fiscal planners working together to reconcile the ideal with the practical). The aim is not only to bring solutions to urban problems but to encourage local governments to build on their present capacities to meet the increased complexity of community needs.

The Model Cities concept required that program activities be coordinated with other municipal services. As a result, Model Cities Programs often have management information systems and evaluation sections to root out duplications, inefficiencies and evaluate performance levels of model cities projects. Personnel required include analysis teams trained in a combination of science and management. One new director of management information and evaluation for a large Model Cities Program stated: "they (AEP participants) brought with them a basic analytical discipline, without the organizational 'hang-ups' usually affecting analytically-oriented personnel from the agencies themselves."

EXAMPLES OF SUCCESSFUL ADAPTATIONS

Over 65 percent of the successfully placed AEP participants are now employed in the public sector. They are involved in a wide range of activities, many of which afford them unique opportunities to apply skills and techniques previously used in aerospace and defense.

A few examples:

--(From MIT's Report)

--One ADAPTer is employed as Chief of the Quantitative Analysis Section of the public works administration of a major mid-western city. Engaged in transportation studies, environmental impact assessment and project management systems development, he has adapted the skills he gained in aerospace to basic needs of his agency. Under his leadership the department produced a mathematical simulation of traffic movement and applied cost-benefit analysis procedures to project alternatives that emerged. (The cost-benefit calculus was widened in this instance to include "intangibles.") Linear programming techniques were used to identify satisfactory solutions to problems emerging from conflicting or incompatible standards regarding the environmental impacts of proposed public works projects. Steps have been made toward utilization of network analysis--CPM and PERT--methods of managing the department's numerous public works projects.

--Another ADAPTer obtained an executive post in the Office of Science and Technology, that reports to the governor of a large mid-Atlantic state. His experience as an executive engineer has facilitated necessary collaboration with some of the state's major industrialists to redirect the priorities of his agency's "seed grant" activities. His efforts to improve and re-orient the agency's public image may serve to salvage a portion of the agency budget, now under threat of reduction from the state legislature. Outstanding credentials in the aerospace profession undergirded his successful appeal to the engineering faculty of the state university to widen their curriculum to include training in the humanities and social sciences.

--After obtaining a temporary position as coordinator of the Emergency Employment Act in a major Eastern city, one ADAPTer employed his industrial engineering training and inter-organizational skills to reorganize the EEA recruitment, screening and hiring procedures, In a subsequent post as a city planner, he combined his interpersonal skills and general problem-solving aptitudes derived from engineering experience to produce a neighborhood redevelopment plan acceptable to the residents of the community.

--An ADAPTer recently secured an EEA position as a Regional Waste Disposal Engineer for a consortium of four New England communities. His considerable experience in system design, specification development, and operational testing of hardware prototypes is already in use. He has been assigned the responsibility of preparing a grant proposal to the federal government for funds to support the creation of a new solid waste disposal system for the consortium.

--Another ADAPT participant had several years' experience in project coordination for a major manufacturer of electronic equipment. He is now responsible for coordinating the numerous special service and ward care units of a major New England hospital. He reports that in many ways the problems of coordination are similar in both organizations. Thus, he had been able to adapt skills from industrial management to hospital management. His knowledge of electronic equipment has already saved money for the hospital's purchasing division.

--Within weeks after his appointment as assistant to the mayor of one of the fastest growing communities in the nation, one ADAPTer was assigned sole responsibility for review and presentation of the city's annual budget. His industrial management experience apparently served him well: his budget presentation was accepted without question by the city council and department heads alike. It included a 5.2% "inflation factor" increase, yet yielded a net reduction of $500,000 from an originally proposed budget of $44 million. As a result of his effort, he has been asked to prepare a reorganization plan for the city government, and to recommend procedures for computerizing the city's record-keeping. Both tasks will require that he draw from his management experience.

--One ADAPTer had considerable experience and formal training in financial management. He secured employment as Finance Administrator of the municipal government of a large city in the Southern United States. He immediately created a revolving fund to keep the city's liquid assets available for quick use. He increased employee productivity by installing a memo documentation system and by developing a clear-cut division of responsibilities and a set of job descriptions. He has initiated the practice of submitting a monthly financial report to the city manager and is currently engaged with the task of moving the city's accounts to a fund accounting system.

--One ADAPTer is using the knowledge of mechanical engineering he developed in aerospace to develop system specs for air conditioning equipment to be installed in proposed facilities of a state highway division. His basic engineering skills provide a solid foundation for solving the varied engineering problems assigned to his "catch-all" technical unit within the department's engineering division.

--One ADAPTer's experience in project planning and management for a defense contractor previsaged a unique adaptation to public sector needs. He now monitors hardware procurement contracts for a federal agency. Part of his responsibility requires that he review his agency's procurement specifications and the project production plans of competing private contractors.

--(From AEP Headquarters)

--One West Coast participant obtained a position as an intermediate planner in a medium size southern California city. He has been employed with the City Planning Department for some six months: soon he will be promoted to Environmental Analyst for the Department. Utilizing his aerospace skills and the training received at the UC orientation, this ex-aerospace engineer is conducting noise standard evaluations, conducting research on zoning codes and enforcement, and interpreting (along with redefining) building codes for the city. He had developed the research design for noise control and environmental analysis, putting his city government in the forefront of this effort. His supervisors are so pleased with his performance that a new department is planned with this participant as its head.

--Working in a county flood control and water conservation district, another AEP participant is now an environmental specialist. This is a totally new operation and this former aerospace engineer is breaking new ground for this district. He brings together public groups, consultants, engineering contractors, etc. who will be affected by any project being developed in the field of environmental control. He has been responsible for the preparation of Environmental Impact Statements which must carry forth agreements to legal fruition and completion.

--In a large Southern California city, one former engineer is acting Chief of the Fiscal Division in the Human Resources Department. His activities focus on program development of DOL sponsored manpower programs. In this position, this AEP participant has responsibility for all of the Department's research and development. In this capacity, he has worked on new approaches to child care resulting in a large grant awarded to the city because of his utilization of special groups in this effort with emphasis on economic development programs with the Chicano community. His application of pragmatic rather than a pure social science approach to problems has earned him an early promotion to his present position.

--Now as an Assistant Administrative Analyst, this AEP participant is assigned to the city's non-profit corporation for economic development which is designed to improve the city's and county's economic health. Within the research division, he has been involved in analyzing the development of a Black bank, a plaza redevelopment site, a recycling plant, and a tidewater redevelopment project. His supervisors find him to be a self-starter with the ability to work without supervision and in a creative manner. This is a new program needing this type of creativity: this former aerospace engineer has responsibility for cost-benefit analysis, contact with all public and private sector groups involved in project development and implementation and contact with the investment industry.

--This former engineer is now a PEP Coordinating Assistant Manager. He is responsible for the training and supervision of clerical staff working in the administration of the PEP Program. To date, he has devised techniques for program control and reporting in coordination with the Budget and Auditing Departments for the city as well as DOL. This AEP candidate has aided in computerizing the PEP reporting system and has developed a technique for identifying the status of allocated positions on a daily basis. He is soon to be promoted to a position with responsibilities for devising management plans and implementing fiscal procedures for control of operational programs.

--Working in the general services department of a medium sized city in California, this AEP candidate is now handling multiple assignments including labor relations and research. He has developed a scientific approach in budgeting and revenue projection. While working on this project, he was able to uncover some $200,000 in additional city resources flexible enough to be reprogrammed into needed community projects.

--As an environmental planner, this AEP graduate is involved in population projections and a variety of other project assignments. One aspect of the job is extensive public contact. The development of special informational handouts as an outgrowth of a new sign ordinance has been one of his duties and he has made many technical presentations to the review board on behalf of the administration.

> --Using his aerospace skills, this former engineer has developed an empirical standard for use by city meter readers. Additionally, working on behalf of the city's police department, he has conducted a study on vehicular traffic in the downtown area. The population of the city is 200,000. As an Administrative Analyst in the City Manager's Office, this AEP candidate's skills will be used by the city in broadening its measurement research capabilities.
>
> --As an administrative analyst for one of the country's largest county governments, this AEPer has broad activity involvement. Working with minimum supervision, he is relating new management techniques prior to implementatin of new systems while working with the Board of Supervisors' special committee on budgets and with special commissions such as Air Pollution Control District, Agricultural Commission and the Department of Annual Control.

In summary, AEP professionals now working in local government appear to be living up to their employers' expectation. Some have been described as anticipated "bonuses." Many can be expected to achieve substantial advancement. Others will find it best to "move on" to another job in the public sector. What is important is that they have taken the first step toward a career change. Almost all say they enjoy their work. One participant put it this way: *"Compared to my work in the aerospace industry, these people are far more human--warmer--and are interested in their workers."* He does not want to move from his position.

UNIVERSITY FINDINGS ON ADAPTATION AND PERFORMANCE

MIT and UC at Berkeley were charged with the responsibility of post-orientation evaluations of participants who have found employment to determine performance levels and the degree to which their skills and experience have been effectively applied to their new job settings.

Interviews conducted by the University of California and Massachusetts Institute of Technology indicate that the performance of the participants is often difficult to define and to measure.

At the time of the interviews, participants had not been on the job long enough to provide an assessment of their long range contribution. Most had been assigned initially to unstructured tasks that the supervisors intended to be useful introductions to the system and its procedures. However, the reports suggest that, with more experience, participants are likely to progress to more definitive assignments. Employers who are impressed with participants' performance tend to be more willing to allow them to innovate than they were at the outset.

MIT reported that several of the participants who are now in administrative positions "have taken a longer perspective and indicate that benefits to their organization may not show up for some time." Although it is difficult to ascertain what their contributions may be, it is generally felt that "executive-level responsibility demands less of technical proficiency than it does of standard business executive skills which can also be adapted from aerospace and defense organizations."

Some, however, have been able to accomplish short-range objectives which will provide lasting benefits to local government. For example, four participants had been hired by a small, newly incorporated city in Southern California. The City Manager assigned these new employees to "floating" management research positions. Their role as a team unit is to conduct broad-scale studies of existing or potential problems in any of the city's four departments.

One of the first tasks assigned to the team was to conduct an Environmental Inventory and Impact Analysis. This study appears essential to future decision-making. This approach saves technical consulting fees for the city.

MIT notes that "some of the more prominent examples of adaptation involve the use of analytical skills to solve management problems." This is particularly true in one Model Cities Program where four participants had been hired to monitor, control and assess Model Cities projects. Another had been hired in a Program in the Mid-West to monitor the day-to-day operations of various coordinated projects. Participants hired by Model Cities Programs possessed degrees or actual experience in management theory and application. One in particular had experience in coordinating projects. Several of the positions are analytically-oriented and are assigned to management research. This suggests that the principle of Model Cities capacity-building impacts on other governmental services. Cities are more aware of the need to effect changes to facilitate the more expeditious delivery of services.

Based on interviews conducted by MIT, it appears that aerospace skills and experience can be adapted to urban situations. They report:

> (1) *Participants who took jobs in the public sector frequently find ways to apply their skills and experience, whether or not their roles had been carefully delineated for them at the outset.*
>
> (2) *As these participants acquire knowledge about their immediate organizational environment, their performance tends to improve.*

However, insecurity may tend to nullify a participant's potential. This is particularly true in tenuous, short-term positions. Several of the participants who have been hired in positions sponsored by the Emergency Employment Program (EEA) have expressed concern that EEA jobs are only temporary. A participant may feel obligated to find a more secure position, which inevitably detracts from his ability to perform effectively on his present job.

UNIVERSITY OF CALIFORNIA

An extension of the contract period was granted the University of California to expand their investigations during the summer of 1972.

Findings about West Coast participants placed in the public sector will not be available until September, 1972.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

MIT surveyed all ADAPT participants during February and March 1972, and later interviewed a number of public placements and their immediate supervisors. Some of MIT's findings on adaptation of aerospace skills and experience to urban problems and governmental needs are summarized below. (A more detailed description of investigative results can be found in Project ADAPT, Report #2: *Review and Assessment of Post-Orientation Careers of Project Participants*, May, 1972, Chapter V, p. 87 - 121).

CONCLUSIONS

(1) Persons with more general managerial and organizational experience moved more readily into public service than did persons with narrower experience in a "hard" engineering specialization. (MIT Report, page 3)

(2) More effective performance and greater use of advanced management techniques--occurred earliest in those agencies that had a clearly defined, preexisting need for these services: in short the better prepared the agencies were to utilize the AEP participants, the more effectively they performed. (MIT Report, page 10)

(3) Approximately three-fourths of the group at MIT had been previously employed by project-oriented, rather than by manufacturing, production-oriented, companies. Thus, the management techniques from most participants' work experience were easily adapted to public agencies whose workload is organized on a project basis. (MIT Report, page 94)

(4) In agencies where the work performed is more analogous to industrial production processes--e.g., in agencies providing constant flows of services--the skills of ADAPT participants with experience in operations research and industrial engineering appeared to be more adaptable. (MIT Report, page 95)

(5) Executive-level positions in public agencies seem to demand less technical proficiency than standard business executive skills which can also be developed in aerospace and defense industries. (MIT Report, page 100)

(6) In most instances of successful adaptation a key factor seems to have been the employer's recognition of a need for the skills participants could apply to the problems of the agency. (MIT Report, page 101)

(7) In several instances, apparent difficulties of adaptation stemmed from participant's dissatisfaction with some aspect of his job situation. This was particularly so when a participant's present salary was substantially lower than his aerospace salary. (MIT Report, page 104)

(8) Participants who took jobs in the public sector frequently found ways of applying their skills and experience. However, most participants had not been on the job long enough to provide an accurate assessment of their performance. (MIT Report, page 107)

(9) Preliminary investigations indicate that a transfer of skills and experience from one discipline to another is feasible: a review of the experience of participants identified many positions where aerospace skills and experience could be adapted to urban problems and governmental needs.

(10) Adaptation occurs most frequently when the work to be performed is essentially managerial or requires the technical knowledge and general problem-solving skills possessed by professional engineers. (MIT Report, page 93)

CHAPTER VI

ANALYSIS OF FURTHER FACTORS AFFECTING PLACEMENT

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ANALYSIS OF FURTHER FACTORS AFFECTING PLACEMENT

In this chapter individual factors will be discussed which affected achievement of the objectives dealt with previously in this report.

The report covers factors that affected both candidate and employer attitudes toward career changes from aerospace to local government. For example, AEP participants were often confronted with residency requirements when they applied for job openings outside of their own area of residence. Some were faced with relocation problems in accepting jobs in another locale.

All participants were confronted with lower salary offers from local government than they had earned in aerospace. Age may have played a role in the decision to hire or reject AEP participants; and age may have had psychological affects on older candidates seeking employment. Certainly, public employers looked to the participants' educational background as well as their work experience in determining their suitability for the job.

Several other factors, such as length of unemployment and the effects of EEA upon placement, which were briefly discussed under the four main objectives of the project are discussed in this chapter.

THE RELOCATION FACTOR

As a condition for acceptance into the project, the candidates agreed to relocate, if necessary, to find suitable jobs in public employment.

However, it was not uncommon for a participant who had agreed to the principle of relocating, to express reservations when confronted with the actuality.

Some of the reasons participants gave for refusing a job interview or accepting a job that would mean relocating are presented below in order of their frequency of occurance:

(1) The new area was undesirable; for example, an engineer from a large urban area might have had only another urban community in mind when he agreed to relocate (the most prevalent factor).

(2) Difficulty in selling a home, a factor that might not have been taken into account at the outset.

(3) Family resistance. The wife might not be willing to move to a certain community; perhaps she or the children did not like the schools there or the climate.

(4) The salary being offered was not considered sufficient incentive to pull up roots.

(5) Overall fear of the unknown. Some participants, having been unemployed for a long period, had lost confidence, and became indecisive. They were unwilling to face an entirely different environment (the least prevalent factor).

Participants from the Boston and Seattle areas, particularly, were reluctant to accept job interviews outside their areas.

There were differences in the rates of relocation among the target areas. Of all placements, approximately 65 percent remained in the same town with a slightly higher percentage of relocation in the public sector than in the private. For participants taking jobs in either category, more relocated outside their State than within it.

The greatest rate of relocation was among the Florida participants, perhaps reflecting the status of Cape Kennedy as a one-industry town. The lowest relocation rates were in Boston, Seattle, San Diego and Wichita.

As of April 30, 1972, placements were made in 11 States and the District of Columbia, in 76 cities and in 13 counties. Some localities hired more than one participant.

Table 12 illustrates the extent of relocation in job placement for East and West Coast participants in public and private positions:

TABLE 12

RELOCATION OF AEP PARTICIPANTS

Placements as of April 30, 1972

WEST COAST PARTICIPANTS:	Remaining in Same City	Relocated to Another city/ Same State	Relocated to Another City and State	TOTAL
Public Placements	81 (70.4%)	17 (14.7%)	17 (14.7%)	115
Private Placements	33 (73.3%)	3 (6.6%)	9 (20.1%)	45
SUBTOTAL:	114 (71.2%)	20 (6.6%)	26 (16.2%)	160
EAST COAST PARTICIPANTS:				
Public Placements	48 (58.6%)	12 (14.6%)	22 (26.8%)	82
Private Placements	31 (67.5%)	5 (10.8%)	10 (21.7%)	46
SUBTOTAL:	79 (61.7%)	17 (13.2%)	32 (25.1%)	128
ALL PARTICIPANTS:				
Public Placements	129 (65.4%)	29 (14.7%)	30 (19.7%)	197
Private Placments	64 (70.3%)	8 (8.9%)	19 (20.8%)	91
GRAND TOTAL:	193 (67.1%)	37 (12.8%)	58 (20.1%)	288

Residency Requirements:

Relocation also poses a major barrier to the hiring authority in local government. Many governments have restrictions against hiring non-residents, particularly in areas of high unemployment. Few officials appear to be willing to seek amendments or waivers of such restrictions in order to hire AEP participants.

Local governments west of the Mississippi showed greater openness to the concept of hiring non-residents than did those in the East. In overall public sector placements, 118 were made in the West; 77 in the East.

Several explanations suggest themselves. There are newer, faster growing communities in the West. Some are newly formed governments, such as Simi Valley, California, which hired four AEP participants and which until recently had contracted with the County of Los Angeles for governmental services.

Frequently in the West, personnel systems are more flexible and dynamic. There appears to be greater willingness to innovate.

Because of the westward trend in national population, many of these communities are composed primarily of persons who have themselves relocated. Thus, the idea of hiring someone from "the outside" is more acceptable.

Even if residency requirements were not a matter of law, statute or policy, hiring authorities were still reluctant (for political and perhaps morale reasons) to hire "outsiders." For example, one county had interviewed many residents for a position, finally found an AEP participant that they said had superior qualifications for the job. The participant was told he was hired. When the position was discussed at a city council meeting, a newspaper reporter published the fact. His paper editorialized against hiring an outsider while residents were out of work. In the face of this pressure, the job offer was withdrawn by the local government. Three months later, the position was still open.

About two-thirds of the participants hired in public jobs were hired in their own communities. In addition to the near-universal preferences for local residents for public jobs, local governments with a large unemployed aerospace population often have had previous experience taking in displaced engineers and scientists and have learned that they are capable. The basic idea behind AEP is not as novel to them as to hiring authorities elsewhere.

Participants from certain target areas such as Boston were reluctant to relocate. Many had lived in the area all their lives and had worked nowhere else. Those situated in Florida and California often had a history of relocation, and the prospect was less distasteful or frightening to them.

Furthermore, participants often had influence of one kind or another in their community, knew friends in local government, or their congressmen, for example. In short, they or their acquaintances "knew their way around" their own communities but had no such knowledge in other towns.

Since such a substantial percentage was eventually hired in the community from which participants joined the program, it might be asked: Why hadn't they been hired before AEP was formed?

Three factors appear to have influenced these hirings:

(1) The project encouraged engineers and scientists to apply for employment in their local government. Perhaps it had not occurred to them before; perhaps before the orientation they felt they had no aptitude for such positions.

(2) The project increased awareness of public officials that there were professionals in their community who were motivated to transfer their skills to the public sector.

(3) During the project new job opportunities were opened under the provisions of the Emergency Employment Act.

Conclusions on Relocation

(1) Local and State laws, Civil Services requirements, etc. limit the areas from which persons are to be recruited for available positions.

(2) Particularly in times of high unemployment, local hiring authorities, for political and other reasons, prefer to hire from within their own jurisdictions.

(3) If the job elsewhere appears to be similar to the types of public jobs available at home (or within commuting distance,) AEP participants tended to pursue the local jobs even if it meant less money.

(4) Public jobs must be particularly attractive (responsibility mid-level status, career advancement, salary, etc.) before a professional would consider the relocation of his family and home.

THE SALARY FACTOR

Participants were advised before entering AEP and again during orientation that salaries in the public sector might well be less than those they had earned in the aerospace and defense industries.

Almost all participants who were placed are currently earning less than formerly. Approximately 81 percent of all the candidates were earning salaries of $15,000 and more annually. Now, however, some 38 percent of those employed in their present jobs (public and private) are earning identical wage levels. A comparison of salary levels to former and present jobs is provided in Table 13.

TABLE 13

SALARY COMPARISONS

(Former and Present Jobs)

As of April 30, 1972

SALARY RANGE	Former Aerospace Defense Job (All Participants)	Present Job (Public and Private) (Employed Only)
Under $8,000	1 (.2%)	9 (3.1%)
$8,000 - $10,000	5 (1.3%)	37 (12.8%)
$10,000 - $12,000	24 (6.3%)	69 (23.9%)
$12,000 - $14,000	39 (10.2%)	62 (21.5%)
$14,000 - $16,000	70 (18.4%)	40 (13.8%)
$16,000 - $18,000	82 (21.5%)	18 (6.2%)
$18,000 - $20,000	79 (20.7%)	17 (5.9%)
$20,000 and over	80 (21.0%)	13 (4.5%)
Unknown		23 (7.9%)
TOTALS:	380 (100.0%)	288 (100.0%)

Public Sector Averages: The great majority of those in governmental jobs were earning between $8,000 and $16,000 per year with the average salary being $12,098. Public jobs funded by the Emergency Employment Program had an average salary level of $10,956 or 9.4 percent less than the overall public sector average of $12,098.

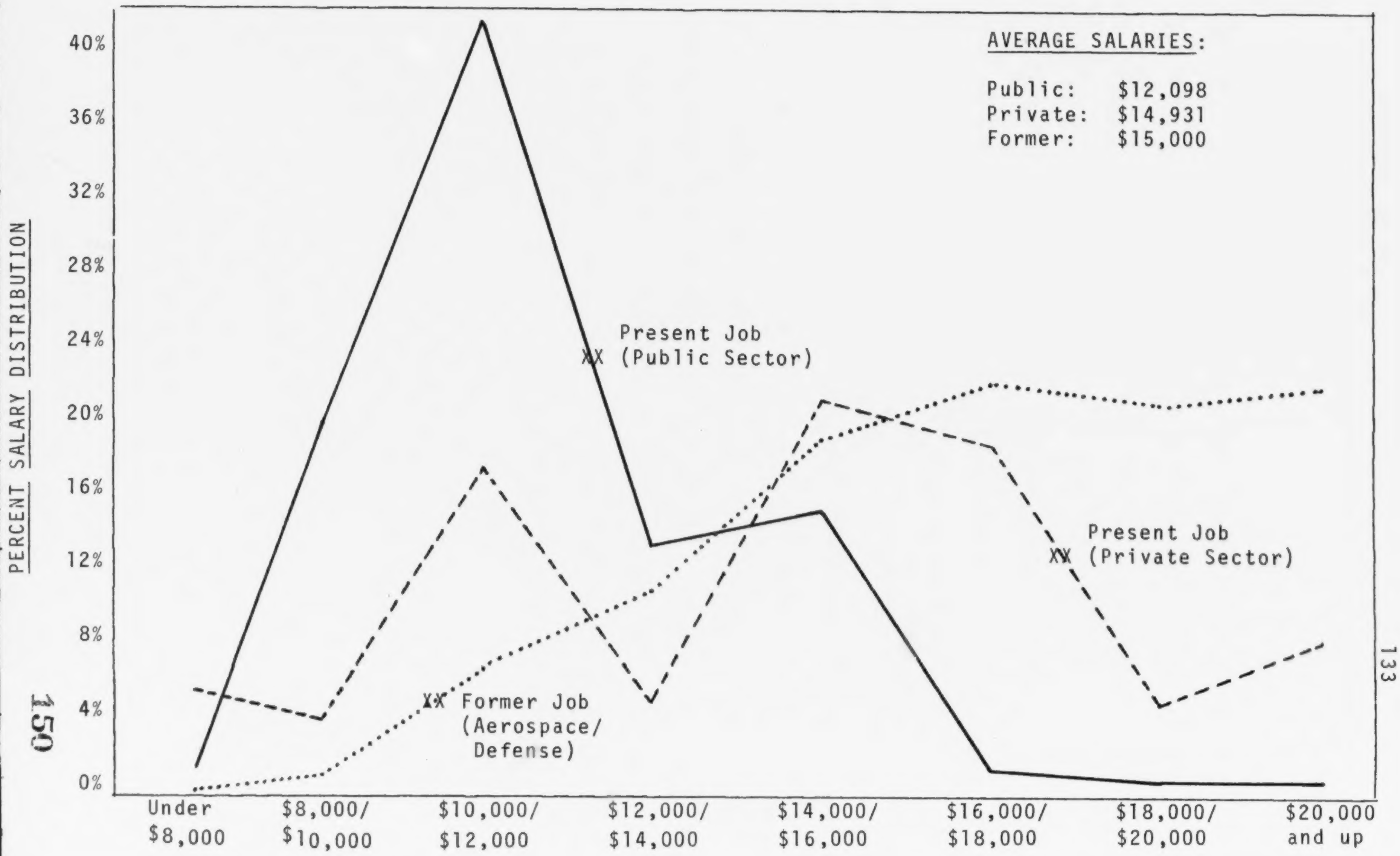
Private Sector Averages: Almost half the individuals in private placements (45 percent) are earning between $8,000 and $16,000 with the average AEP private sector salary being $14,931. This is about 24 percent more than the average public sector salary.

Total Earnings of Participants: It is estimated that AEP participants now earn a total of $3,378,784 annually. Almost 69 percent of total wages earned represent public sector placements for a dollar value of $2,322,921. The remaining $1,090,023 reflect the total wages earned by persons employed in the private sector (or 31 percent). Placements in public jobs funded by the Emergency Employment Program represent 43 percent of total wages earned in the public sector (or $997,037).

The Chart on Salary Comparisons illustrates wage differentials between former job and present job in the public and private sectors.

SALARY COMPARISONS

Former Aerospace/Defense Job to Present Job in Public and Private Sectors



Average Salaries by Target Area: The highest average salary in the public sector was earned by the Long Island placements. This group was 7.5 percent above the average of $12,098 (the average was $13,015). The lowest average salary was associated with two target areas, Orange County and Wichita. Both areas were 13.7 percent below the average, or $10,429. This drop in average dollars earned by the Orange County placements may be associated with the higher number of EEA positions obtained by this group compared to other target areas. For Wichita, this drop represents the normal index of professional pay scales in local government for this region of the country.

The highest average salary in the private sector was found in the largest metropolitan area. Los Angeles had a private sector average of $17,646 which represents 18.1 percent more than the average of $14,931. The lowest average wage for private placements sector was $6,073; however, this relfects the earnings of the only individual in Orange County who obtained employment in the private sector. All others in the Orange County area were placed in public jobs. Table 14 shows the average salaries by target area.

TABLE 14

AVERAGE SALARY BY TARGET AREA

Placement as of April 30, 1972

Target Area	PUBLIC SECTOR #	PUBLIC SECTOR Average	PRIVATE SECTOR #	PRIVATE SECTOR Average
Seattle	33	$11,321	22	$16,604
San Jose	14	$12,776	3	$14,290
San Diego	14	$11,419	1	$10,800
Los Angeles	29	$12,724	10	$17,646
Orange County	14	$10,429	1	$ 6,073
Wichita	10	$10,429	8	$11,052
Huntsville	9	$11,866	9	$12,513
Cape Kennedy	14	$12,755	6	$15,300
Boston	41	$12,096	22	$15,753
Long Island	18	$13,015	9	$14,111
TOTALS:	197	$12,098	91	$14,931

CONCLUSIONS ON SALARY

(1) Salaries were _not_ the key determining factor in participants' accepting a position within local government.

(2) Scientists and engineers were willing to accept permanent jobs in their present location for the same or lower salaries than they had in their former jobs.

(3) Salaries were acceptable to about the same or slightly more than engineers and scientists were earning in their former job when they chose to relocate.

(4) Willingness to accept lower wages was due in part to: (a) a bitterness toward the instability of the aerospace industry; (b) an opportunity for stable public service careers; and (c) anticipated advancement with appropriate wage increases.

THE AGE FACTOR

Analysis of AEP participant placements by age suggests that public employers were more willing to hire older persons than other employers. This was probably due to the specific nature of the AEP universe: engineers and scientists were seeking middle-management positions, not just engineering jobs *per se*. Therefore, the older participants tended to have more managerial experience than the younger ones. Since most participants were being considered for jobs that require some degree of skill transfer, employers put emphasis on those who had experience and would take least training to adapt. AEP participants ranged in age from 28 to 65; the average age of the participants was 47. Table 15 shows the distribution by age for all participants and for those placed in public and private jobs.

TABLE 15

AGE DISTRIBUTION OF AEP PARTICIPANTS

As of April 30, 1972

Age	All	Placements		Remaining		
Category	Participants	Public	Private	Unemployed	TOTAL	%
25/34	30 (8.0%)	16 (8.1%)	5 (5.4%)	5	21	70.0%
35/44	114 (30.6%)	59 (29.9%)	33 (36.2%)	23	92	80.7%
45/54	173 (46.8%)	92 (29.9%)	41 (45.1%)	43	132	76.3%
55 +	54 (14.6%)	30 (15.0%)	12 (13.4%)	12	42	77.7%
TOTALS:	371 (100.0%)	197 (53.0%)	91 (24.6%)	83	288	77.6%

CONCLUSIONS ON AGE

(1) Generally, age does not appear to be a detrimental factor for engineers and scientists seeking career changes in local government.

(2) Professionals in the 40+ age group are attractive to local government because they possess mature experience. Programatic, managerial and administrative

knowhow received the greater emphasis in public placements. Public employers essentially determined that many years in the 'world of work' brought more advantages for the money when engineers and scientists were considered for the jobs.

THE EDUCATIONAL FACTOR

Participants with Ph.D. degrees were hired in the highest paid public jobs. There was immediate demand in the public sector for those who had an advanced degree in a field other than engineering. Some participants had earned their bachelor degrees in engineering and later completed a Master's program in another discipline.

Participants with only straight engineering education found it easier to get private jobs than public. Some sought private jobs knowing their educational background was not likely to be attractive to public employers. State and local governments, however, appear to have been impressed by diversified educational backgrounds.

Participants lacking a college degree were less successful in obtaining reemployment. This was true although these individuals held professional or engineering jobs in industry.

Table 16 provides information on educational levels (highest degree attained) for all candidates with comparisons on number employed in the public and private sectors and number unemployed as of April 30th.

CONCLUSIONS ON EDUCATION

(1) Few public employers appeared to have serious reservations concerning an engineer's educational background. Employers indicated confidence that persons with engineering, technical backgrounds had many years of training.

(2) Public employers preferred participants with non-engineering degrees in addition to their basic training.

(3) Public employers requiring engineers insisted on specific degrees that matched the job titles, i.e. civil engineering degrees for civil engineering positions.

LENGTH OF UNEMPLOYMENT

Although conversations and placement experience with participants (as well as the comments of potential employers who interviewed them) indicate that prolonged unemployment does have debilitating psychological effects on aerospace and defense

TABLE 16

DEGREE OF EDUCATIONAL ATTAINMENT OF AEP PARTICIPANTS

Educational Level:	All Participants	Employed	Unemployed	Employed in: Public Sector	Private Sector
No Degree	36 (9.7%)	25 (69.4%)	11 (30.6%)	14 (56.0%)	11 (44.0%)
BS/BA in Engineering	135 (36.3%)	101 (74.8%)	33 (25.2%)	56 (55.4%)	45 (44.5%)
BS/BA or Other	64 (17.2%)	47 (73.4%)	17 (26.6%)	36 (76.5%)	28 (23.5%)
Two or more Bachelors	13 (3.5%)	11 (84.6%)	2 (15.4%)	9 (81.8%)	2 (18.2%)
MA/MAS in Engineering	49 (13.2%)	41 (83.6%)	8 (16.4%)	20 (48.7%)	21 (51.3%)
MA/MS in Other	56 (15.0%)	48 (85.7%)	8 (14.3%)	38 (79.1%)	10 (20.9%)
Ph.D.	18 (4.8%)	15 (83.3%)	3 (16.7%)	13 (86.6%)	2 (13.4%)
TOTALS:	371 (100.0%)	288 (77%)	83 (23%)	186	102

*Highest degree attained

professionals, the data on length of time unemployed compared with final placement rates are inconclusive.

The average period of time unemployed for the universe of participants was 7.1 months. The average for those placed in the private sector was 5.6 months, compared with 6.3 months for the public placements, not a significant difference. Orange County participants, all of whom were placed by April 28th, were unemployed an average of 12 months upon entering the project--the longest average of any of the 10 target areas. However, placement rates were also healthy in target areas where prior periods of unemployment average only 5 months--Seattle, Long Island and Cape Kennedy.

Those unplaced had been unemployed an average of 8.2 months before joining the project--again not a major divergence from the average of all participants.

Table 17 provides information on the average number of months unemployed for AEP participants. Averages are also presented for placements in the public and private sectors. All averages are based on the number of months unemployed upon entry into the project, August, 1971.

The MIT Report to AEP said: "The best predictor of post-orientation employment was the length of unemployment before the orientation: persons with a history of unemployment experience greater difficulty finding employment afterwards."

TABLE 17

AVERAGE NUMBER OF MONTHS UNEMPLOYED
(Upon Entry into the Project)

AREA	ALL PARTICIPANTS	TOTAL RATE OF PLACEMENT	PUBLIC PLACEMENT AND RATE	PRIVATE PLACEMENT AND RATE
WEST COAST PARTICIPANTS	7.8 months	85.1%	7.3 months (58.5%)	5.6 months (26.6%)
EAST COAST PARTICIPANTS	6.0 months	69.6%	4.7 months (41.5%)	5.5 months (28.4%
TOTAL AEP UNIVERSE	7.1 months	77.6%	6.3 months (64.5%)	5.6 months (35.5%)

While this may be true for East Coast participants who attended the MIT orientation, it does not necessarily hold true for the rest of the participants (approximately half of the universe). The average number of months unemployed for the West Coast participants was 1.8 months longer than the average for all AEP participants. In the case of the public sector placement, the West Coast rate surpasses that of the East by 17 percent. However, the average number of months unemployed for the Western group placed is higher than the

the total average for all AEP participants (7.3 months for public placements in the **west** as compared to 7.1 months for the total average).

On the whole there seemed to be little direct correlation between length of unemployment and eventual placement.

OTHER PSYCHOLOGICAL FACTORS

The University of California administered psychological tests to the candidates in orientation there, finding "[they] appear to be quite normal in their psychological functioning. The men view themselves in positive terms and there are no signs of depression." It is important to note that this test was administered to persons selected for the Aerospace Employment Project, who therefore had some expectation of employment at the completion of the orientation program. Thus this group is not truly representative of all unemployed scientists and engineers.

The psychological problems that attend prolonged unemployment have been well documented. In an article called "The Breaking Point," The Wall Street Journal (November 30, 1971) cited the case of a Boston defense scientist who contemplated suicide when *"His savings have evaporated. His health has deteriorated. His marriage has turned sour."*

"His life is not all that unusual these days," the article continues, *"Particularly in this area with its high concentration of defense and aerospace firms. Nearly 5% of the nation's engineers--the highly educated backbone of the defense industry-can't find a full-time job in their profession, a sharp increase from only 1% in the 1964-69 period, reports the Engineers Joint Council in New York. Furthermore, many of these individuals, having never before been unemployed, are now well into their second jobless year, and initial stoicism has often been replaced by desperation."*

Citing Seattle, Wichita and Cape Kennedy as other such areas, the article quoted Tom Geening, former head of a California state project to relocate the unemployed: *"Suicide figures are shocking, and the number of marriage breakups is incredible."*

Project staff found that psychological problems of varying magnitude did exist among the participants; sometimes they manifested themselves in a manner which had direct bearing on their likelihood of finding employment.

One city official who interviewed a participant described his attitude as, "gunshy--he seemed to wince and cringe." The man had been turned down after several other interviews and had apparently lost confidence in his ability to present himself favorably. With a few participants, it became so chronic that they would find excuses not to attend any job interviews that had been arranged. Some did not even notify potential employers that they did not intend to keep the interview appointment.

The chief administrative officer of a jurisdiction that hired six participants wrote: *"The rather desperate unemployment situation was obviously a traumatic experience for some of these people. Several of them have so far remained quite unsure and reticent, and have a tendency toward anonymity which will have to be overcome."*

Some participants had developed unwarrantedly high expectations that they would be placed in a local government job immediately after orientation. When they were not, they seemed depressed and sometimes bitter.

A few called AEP headquarters constantly to talk about their personal problems and complain they had not been interviewed. They could not easily accept that their resumes had been sent to employers but that they were not called for an interview. To find that an employer was disinterested was incomprehensible to a few candidates.

Some other participants took an entirely opposite approach. After a short while in the project they stopped informing job development staff of their whereabouts, whether they had a temporary job, or even a permanent one.

One participant was matched with a number of jobs. In some cases, employers wanted an interview, but the project could not reach him. Finally, in April, one employer felt strongly that the participant had the desired qualifications, and a messenger was dispatched to the address he was traced to. It turned out he had been employed since October, but had moved and neglected to inform the project.

It was found that some participants misunderstood the purpose of the project entirely, despite constant explanations during orientation. They had joined the project with the misconception that acceptance carried the guarantee of a specific job in local government--that the certificate of completion of orientation was a ticket for a job. Such misconceptions made it more difficult to deal with participants during the remainder of the project.

When the Emergency Employment Act became effective (under which half of the placements in the public sector were made), participants were suspicious about accepting such openings because they were listed as temporary. Accustomed to the layoffs of the aerospace and defense industries, many participants were unwilling to consider any further investment in temporary jobs. Although AEP staff attempted to convince participants that the stability of local government was markedly different from that of their former industries, and that EEA jobs--although officially temporary--would probably lead to permanent employment with the jurisdiction, even if in some slightly different capacity, many participants were not convinced.

Working in EEA positions even if they were temporary, would give participants the practical experience in local government that would qualify them for higher, or at least lateral, positions. Others were rungs on a ladder of salary and responsibility progression common in government, but a new experience to those accustomed to the fixed salary for the life of an aerospace contract.

Considering the trauma of unemployment for professionals who were once sought and prized, the participants' reactions are certainly understandable. But their frame of mind should be recognized as a factor in any such employment program. It should also be pointed out that many participants cooperated fully, organized and participated in self-help groups and became valuable links in job development generally.

CONCLUSIONS ON PSYCHOLOGICAL FACTORS

(1) Participants' attitudes (although difficult to measure) had an effect on their professional stability.

(2) The impression participants made on prospective employers can be directly related to their state of mind--positive or negative.

THE EFFECT OF THE EMERGENCY EMPLOYMENT ACT UPON PLACEMENTS

The Emergency Employment Act of 1971 was signed into law on July 12, 1971 after the Aerospace Employment Project had begun. Its statutory purpose was *"to provide unemployed and underemployed persons with transitional employment in jobs providing needed public services during times of high unemployment and wherever possible, related training and manpower services to enable such persons to move into employment or training not supported under this Act."*

As so often happens with the passage of any innovative legislation--there was initial confusion among those who would benefit from its provisions, in this case, local government employers.

In the long run the EEA program had a positive effect on AEP (about half of the participants hired in the public sector got EEA slots). Because of the timing, however, the short-run impact on the project delayed or aborted some placement efforts. (Cities were just beginning to realize the effect of the act following AEP orientation--when AEP participants finished their orientation at the universities).

Because of the short deadline in applying for EEA funds, local governments found themselves in a sea of urgent paperwork and did not have time to interview AEP participants.

The stringent residency requirements of the EEA initially posed problems for project participants. Sometimes local hiring authorities interpreted these restrictions to mean that a person living in a city within a county was ineligible for a position in the county government because the city also had a program agency with EEA slots to fill and the applicant would have to secure a job with the city.

A process of "swapping" was permissible under the Act which allowed a city to select one or two candidates from outside the geographical program area; if the Regional Manpower Administrator approved, with the understanding that the city of residence of the person selected would later hire someone from the region hiring the person. Although AEP explained this process to a number of potential employers, none chose to follow this complicated procedure.

In March 1972, Section 55.7 (f) of the EEA was revised to provide that the Secretary of Labor may waive the residence requirement for persons who have become unemployed or underemployed as the result of technological change or whose most recent employment was with Federal contractors who have cut back employment because of shifts in Federal expenditures. Regional Manpower Administrators were informed that the Department of Labor would give "prompt and sympathetic consideration to requests for waivers for hiring participants in AEP." Program agents wishing to hire AEP participants were required to indicate that the positions were intended to meet important public needs and that it was not possible to fill the position with persons in the agent's jurisdiction. However, this relief came too late in the life of the project to have any major effect on the placement rate.

As further impetus to hiring EEA participants, the Department encouraged program agents to use funds which would otherwise lapse to create positions and employ persons over and beyond those specified in their original application.

APPENDIX

JOB MATCHING

Job matching, the primary tool employed to carry out Objective III, was the process of providing potential employers with the names and qualifications of AEP participants who appear most suited to the job openings. It was one of the critical tasks performed by project staff. Most AEP participants hired in the public sector were placed through job matching.

The process was refined as the project proceeded, resulting in much greater efficiency. State and local governments submitting job orders needed prompt response. Obviously, no employer would consider all participants in the program and wade through some 400 applications, so it was the duty of the staff to select those participants with the requisite qualifications.

The first task was to classify the project participants by background and skills. This was often complicated by the nature of participants' resumes. For example, a participant might state he had worked with fasor light infraction test measures, without indicating whether he was in a supervisory capacity or had written evaluations or proposals about the tests. At first it was difficult for staff to interpret technical terminology and to determine in what area of local government a participant might be most effective.

With the help of a Public Personnel Association consultant, the staff developed nine categories of governmental jobs and assigned each participant to the one to which he seemed best suited:

1. General Administration
2. Data Processing
3. City Planning, Housing, Zoning
4. Public Works, Parks and Transportation
5. Tax Assessment, Appraisal
6. Laboratory Services, Health Services, Chemical Procedures
7. Electronics, Electrical and Mechanical Operations
8. Agriculture, Rural Land and Water Resources, Air and Water Pollution
9. Teaching

These classifications were considered broad enough to encompass whatever type of public job opportunity the program would receive.

Between four and six staff members devoted most of their time to job matching. It took several weeks for them to become proficient at it. The initial approach to the process proved unwieldy and inefficient.

Among the early difficulties, in addition to translating technical terminology, was a lack of consistency in evaluating applications--some matchers would rely on one part of a resume, others on a different part. The initial classifications were found to be too broad in scope; job descriptions received were often too scanty to classify properly. Participants were unfamiliar with the range of public jobs and the kinds of skills that would be applicable. Consequently, they failed to stress their most marketable talents.

The process was vastly improved when a former aerospace engineer was temporarily added to the staff. She could interpret participants' skills and was familiar with the types of experience they had.

An index card was prepared for each participant, summarizing their experience and indicating their potential. This permitted rapid and uniform scanning of the participants for job matching.

Here is a sample index card:

JONES, LORENZO D.	B.S.	ME--R.P.I.	Age: 46
5 Main St.			Design Engineer
Chelsea, Mass.	U.S. Army		Hydraulics
02109			Fluid flow
617-203-4904			Some supervisory work

10 years at North American Rockwell. Supervised group of 15 engineers, 41 unskilled or semi-skilled workers.

Salary: $1,000 per month

Such information as change of address; temporary job held; interviews attended and job offers refused, and amount of contact with staff were added to the index card later. Although the cards were not as complete as applications or resumes, they provided a quick guide to which participants should be considered further for a particular job order.

Note was also made on index cards of participant's restrictions or preferences--minimum acceptable salary and any areas to which participant would refuse to relocate, for example.

The former aerospace engineer also revised job classifications, assigning participants to the new categories and including such information as type of engineering or scientific specialization, college degrees, licenses, and secondary academic studies such as sociology or psychology. Participants' backgrounds were noted including such special talents as fine arts, agriculture, mining, economics, geology, botany, political science, etc.

On pages 156 - 158 is the revised list of categories with the number of participants in each and the percentage of these participants placed in the public sector.

Not every participant who was placed in the public sector found a job within his category. About 70 percent found the type of work listed for them. Of course, the classification system was essentially a working tool for project staff.

A wide variety of job orders were sent in to the project, some of which were outside the education and experience of the AEP manpower universe. For example, some were for certified public accountants or attorneys. The great majority of jobs developed or submitted by local governments bore a close relationship to the skills of the participants.

Many job specifications required a Civil Engineering degree, often with the proviso that the CE be registered in the State. Many of these specifications had been written in the 1920s and 1930s and were obsolete. The job matching staff attempted to persuade hiring authorities that mechanical engineers, for example, could easily adapt their skills to fulfill the job requirements. In most cases, hiring authorities

CATEGORIES	DESCRIPTION	TOTAL NUMBER OF PARTICIPANTS	PERCENT PLACEMENT
Physical Planners	Includes: land/space experts, manpower loading specialists, report writing and forecasting	34	(Primarily Industrial Engineers or Architects) 76.5%
Personnel Specialists	Technicians, Analysts and Managers	32	81.3%
Health Officers	Safety Officers, Sanitation experts, environmental control	12	83.3%
Systems Analysts	Computer experts Hard or software	69	87.0%
Management Analysts	Information systems, analysis	7	71.4%
Supervisors (Strong)	Many years of supervision over professionals and non-professionals	22	82.0%
Administrators	Analysts, managers, program directors (engineers under the general category of "project engineer." This category covers a broad spectrum of duties in addition to scientific work, such as staffing/recruitment, budget management, scheduling, manpower loading, forecasting, even marketing.	59	74.5%

CATEGORIES	DESCRIPTION	TOTAL NUMBER OF PARTICIPANTS	PERCENT PLACEMENT
Assistant Administrative Analysts	This catchall category embraces a broad range of administrative duties, including planning, budgeting, coordination and liaison	55	69.1%
Senior Executives and Senior Staff	Top level management experts	21	76.2%
Traffic Engineers	Traffic design, control and scheduling	19	83.3%
Transportation Planners	O and D research, planning, forecasting, and development	8	87.5%
Law Enforcement Officers	Criminal justice, proposal and report writing, planning and implementation	11	72.7%
Plant Operations and Maintenance	Quality control, scheduling, safety	23	77.3%
Vehicle Maintenance	Testing, design and safety	4	0
Utilities		13	12.3%
Air Conditioning		5	100.0%
Fire Control Experts		5	100.0%

CATEGORIES	DESCRIPTION	TOTAL NUMBER OF PARTICIPANTS	PERCENT PLACEMENT
Hydraulics		14	92.8%
City Engineers	Mechanical Engineer with construction experience without civil engineering background. Matchers for this category also referred to those listed under Plant operation, Utilities and Hydraulics.	13	84.6%
Test and Design Engineers	Most participants listed here have worked in testing, quality control, inventory and production and have had little supervisory experience.	36	66.6%
Environmentalists	Ecologists, air and water pollution experts	36	73.0%
Education	Administration and teaching	35	67.6%
Purchasing Specialists		18	55.5%
Safety Engineers		20	70.0%

adhered rigidly to the specifications, although in a few instances, they were willing to try the participant. Of those participants who had Civil Engineering degrees, 99 percent were successfully placed in the public sector.

About 180 openings sent to AEP were "lost" for one reason or another. In some cases, the notice of a job opening came too late to get word to a participant before the deadline for applications; a few job orders were mislaid; some were delayed by mails, others were delayed in response. Sometimes the job had been filled before staff had a chance to match an applicant.

Some job orders were submitted prior to orientation and the employer could not hold the job open during the four-week orientation program. Some job orders simply got lost in the crush as others flooded in and the staff were engaged in the constant telephoning involved in notifying participants and prospective employers, arranging interviews, and trying to keep current status of jobs and participants.

Approximately 1,500 job openings were identified and listed by locality, hiring contact, job title and salary. Of these, approximately 1,000 were matched with participants. Placement activities were accomplished by direct matching, self-help groups and/or individual solicitation followed by staff support and by State league identification and support.

Civil Service regulations in some jurisdictions required a job candidate to submit his own application. In such cases, matchers would call the most likely candidates for the opening to apprise them of the opportunity.

As part of the matching process, staff followed up with both employers and participants to ascertain the status of each job order being processed. This continuing communication with participants permitted the staff to become more familiar with their individual capabilities. Conversations often revealed to the staff new facets of skill that a participant possessed but had not thought to include in his initial resume. For example, an aerospace engineer might have been responsible for the budget of this project but was accustomed to thinking of the end product, rather than this step in his former job process which could be converted to local government budget analysis.

The staff achieved a broad and flexible outlook toward potential utilization of participants' skills in government as the project progressed. None of the matchers were professional personnel specialists. Therefore they were free of preconceptions that might have limited the scope of potential applicants. As their experience increased, (and job orders were filled), they were in a position to suggest to employers reasons why a participant could effectively fill a position even if his experience did not meet every particular of the job specification.

The matching process, as eventually refined, would lend itself to computerization. Among the benefits of this approach are: freeing staff to work on job development and follow-up; instantaneous matching of job and participant and vastly increased capacity for job orders and candidates for the job. Although a manual matching system using a staff of four to six persons is feasible, it seems apparent a computerized matching system would be more efficient.

In the National Symposium on Stabilization of Engineering and Scientific Employment in Industry (1966), the following recommendation was offered: *"All prime defense contractors should be required to adopt the USES Dictionary of Occupational Titles and Codes in addition to any company classification system, in order to provide ease in converting former defense workers to non-defense jobs."* Had this recommendation been adopted, it would have been extremely useful in the early stages of job matching.

It would enhance the process considerably if applications were broken down into skills applicable to the job market the participant is seeking to enter. In the case of AEP, the "market" was local government. But the principle would hold for any program where a population of technical personnel is seeking to convert their careers.

Appendix B

LISTING OF PUBLIC SECTOR

PLACEMENTS

For East Coast AEP Participants
Placements as of April 30, 1972

EEA Jobs*	JOB TITLES	LOCALE	Model Cities**
	Extension Services Agent	Auburn, Alabama	
	Management Analyst	Model Cities Program New York, New York	X
	Extension Services Agent	Auburn, Alabama	
	Municipal Services Instructor	Vocational & Guidence Training Program, Fennimore, Wisconsin	
	Director of Compensation	State Personnel Department Montpelier, Vermont	
X	Director of EEA Consortium	North Essex County Laurel, Massachusetts	
	Director of Environmental Quality	Massachusetts TB & Respiratory Disease League, Boston	X
	Management Analyst	Model Cities Program New York, New York	X
	Management Analyst	Model Cities Program New York, New York	X
	Director of Public Works	Jefferson Township/Morris County Lake Hopatcong, New Jersey	
	Utility Systems Engineer	Lowell, Massachusetts	X
X	Assistant Attorney	Department of Public Works Boston, Massachusetts	X
	Telecommunications Specialist	Office of Civil Defense Washington, D.C.	X
X	Assistant to the City Planner	Peabody, Massachusetts	
	Teacher	New Hyde Park, New York	

EAST COAST PLACEMENTS

EEA Jobs*	JOB TITLES	LOCALE	Model Cities**
	Manpower Planner	Manpower Planning Comm. Huntsville, Alabama	X
X	Criminal Justice Planner	Planning Department Lawrence, Massachusetts	
X	Research Planner	Planning Department City of Newton, Mass.	
	Assistant Community Shelter Planning Officer (Draftsman)	State Civil Defense Dept. Montgomery, Alabama	
	Director of Budget and Research	City of Savannah, Georgia	X
X	Administrative Assistant in Public Relations	City of Huntsville, Alabama	X
X	Planner IV	Boston Redevelopment Agency Boston, Massachusetts	X
	Sanitary Methods Analyst	City of Savannah, Georgia	X
X	Job Developer	Urban Coalition Pittsfield, Massachusetts	
X	Job Development Coordinator	Department of Labor Suffolk County, New York	
	Director of Research and Analysis	Department of Public Works City of Chicago, Illinois	X
	Chief, Quantitative Analysis Section	Department of Public Works City of Chicago, Illinois	X
	Chief, Communications and Information Department	Department of Public Works City of Chicago, Illinois	X

EAST COAST PLACEMENTS

EEA Jobs*	JOB TITLES	LOCALE	Model Cities**
	Assistant to the Director	Office of Science and Technology Commonwealth of Pennsylvania Harrisburg	
X	Map Draftsman	Board of Selectmen Chelmsford, Massachusetts	
	Facilities Maintenance Engineer	New York City	X
X	Industrial Engineer (Junior Planner)	Office of Municipal Affairs Department of Community Affairs Boston, Massachusetts	X
X	Town Engineer	Board of Selectmen Hopkinton, Massachusetts	
X	Planner-Engineer	Town of Dedham, Massachusetts	
	Finance Administrator	City of Savannah, Georgia	X
X	Management Systems Analyst	Town of Lexington Massachusetts	
	Mass Transit Engineer	Florida State Transportation Department; Tallahassee	
X	Administrative Assistant to the Mayor	City of Brockton, Massachusetts	
	Industrial Engineer	Federal Civil Service Washington, D. C.	
X	Ecological Scientist	Huntington Township, New York	
X	City Engineer	City of Blakely, Georgia	
	Tax Auditor	U.S. Treasury Department IRS: Brooklyn, New York	X
X	Computer Programmer	City of Chelmsford, Mass.	
X	Case Worker	Department of Social Welfare Nassau County, New York	

EAST COAST PLACEMENTS

EEA Jobs*	JOB TITLES	LOCALE	Model Cities**
	Environmental Scientist III	Environmental Improvement Agency State of New Mexico, Santa Fe	X
	Structures Engineer	Department of Transportation State of Florida, Tallahassee	
	Air Pollution Engineer II	Department of Pollution Control State of Florida, Tallahassee	
	Assistant to the Project Director	State Department of Welfare Boston, Massachusetts	X
	Building Construction Engineer II	State Department of Public Health Bureau of Health Facilities Montgomery, Alabama	
	Senior Quantitative Analyst	Model Cities Program New York, New York	X
X	Federal/State Fund Coordinator	North Essex County Massachusetts	
X	Program Personnel Analyst	EEA Consortium Fitchburg, Massachusetts	
	Customs Inspector	Department of Treasury U.S. Bureau of Customs Brooklyn, New York	X
	District Equipment Engineer	Department of Transportation State of Florida, Tallahassee	
X	Assistant Training Coordinator	City of Holyoke, Massachusetts	X
X	Personnel Development Analyst	Bristol County, Massachusetts	
X	Management Analyst	Bureau of the Budget New York, New York	X

EAST COAST PLACEMENTS

EEA Jobs*	JOB TITLES	LOCALE	Model Cities**
	General Engineer	Naval Weapons Laboratory Federal Civil Service Dahlegren, Virginia	
X	Assistant Personnel Management Analyst	City of Bridgewater Massachusetts	
	Assistant Audio Visual Director	Town of Winthrop Massachusetts	
	Management Information Specialist	State of Wisconsin, Madison	
X	Assistant to the Town Engineer	City of Rockport Massachusetts	
X	Construction Inspector	City of Hempstead, New York	
	Fall Out Shelter Inspector	Department of Civil Defense State of Tennessee, Nashville	
	Criminal Justice Systems Specialist	City of Denver, Colorado	X
X	Project Director for EEA Consortium	West Bridgewater Massachusetts	
X	Personnel Specialist	Chelsea, Massachusetts	
X	Sanitarian	Suffolk County, New York	
	Mechanical Engineer	Federal Civil Service Watervleit, New York	
	Architectural Planning Coordinator	General Services State of Florida, Tallahassee	
X	Assistant Town Planner	Wellesley, Massachusetts	
X	Director, Solid Waste Disposal Study Committee	Town of Needham, Massachusetts	

EAST COAST PLACEMENTS

EEA Jobs*	JOB TITLE	LOCALE	Model Cities**
	Assistant Traffic Engineer	Richmond County, Georgia	
	Draftsman	Northeast City Gas Astoria, Oregon	
X	Project Director Solid Waste Disposal Study	Holyoke, Massachusetts	X
	Research Associate	Holyoke, Massachusetts	X

*EEA Jobs: An "X" to the left of placements reflects those jobs which are classified under the Emergency Employment Program.

**Model Cities: An "X" to the right of placements reflects those jobs which are located in jurisdictions with Model Cities Programs.

LISTING OF PUBLIC SECTOR PLACEMENTS

For West Coast AEP Participants
Placements as of April 30, 1972

EEA Jobs*	JOB TITLE	LOCALE	Model Cities**
X	Administrative Analyst II	Santa Clara County California	X
	Civil Engineer	Everett, Washington	
X	Administrative Assistant	Mayor's Office Fountain Valley, California	
X	Civil Engineer	Rock Island, Illinois	X
X	Administrative Assistant	Orange County, California	
X	Public Works Engineer	Bothell, Washington	
	Urban Scientist	Bellevue, Washington	
X	Administrative Assistant to the City Manager	Orange City, California	
	Budget Analyst	Hayward, California	
	Civil Engineer II	Wichita, Kansas	X
X	Administrative Assistant and Personnel Director	Mercer Island, Washington	
X	Pollution Environmentalist	Port Authority Simi Valley, California	X
	City Engineer	Prineville, Oregon	
	Staff Engineer	Communications Division County of San Diego California	X
	City Traffic Engineer	Wichita, Kansas	X

WEST COAST PLACEMENTS

EEA Jobs*	JOB TITLE	LOCALE	Model Cities**
X	Associate Civil Engineer	City of Simi Valley California	X
	President of Technical Institute	State of Kansas	
X	Planner	City of Simi Valley California	X
	Grant Coordinator	San Bernardino, California	
X	Federal Programs Coordinator	Snoqualmi School District Snoqualmi, Washington	
X	Assistant Analyst	Alcohol Safety Action Project Los Angeles County, California	
X	Administrative Assistant to Superintendent of Schools	School Department Auburn, Washington	
	Mechanical Engineer	Federal Civil Service San Diego, California	X
	Project Engineer	Department of Defense Federal Civil Service China Lake, California	
	Unknown	Federal Civil Service Veteran's Administration Wichita, Kansas	X
X	Water Quality Specialist	Idaho Water Administration Boise, Idaho	X
X	Assistant Administrative Analyst	Los Angeles County California	X
X	Transportation Planner	Mt. Lake Terrace, Washington	
	Civil Engineer	Juneau, Alaska	X

WEST COAST PLACEMENTS

EEA Jobs*	JOB TITLE	LOCALE	Model Cities**
	Civil Engineer I	State Highway Commission Topeka, Kansas (State)	
X	Fiscal Control Officer	San Diego County, California	X
X	Research Investigator	Oceanographic Council Seattle, Washington	X
X	Legislative Research Analyst	Seattle, Washington	X
	Planning Analyst	City of Wichita, Kansas	X
	Planning Analyst	City of Wichita, Kansas	X
	City Engineer	La Habra, California	
	Assistant Air Pollution Engineer	Sacramento State of California	
X	Project Coordinator for EEA	Personnel Department Santa Clara County	X
X	Research Coordinator and Planner	Enumclaw, Washington Enumclaw School District #216	
	City Demonstration Coordinator	Model Cities Program Wichita, Kansas	X
X	Administrative Assistant	Manpower Administration Seattle, Washington	X
X	Planning Aide	City of Anaheim Planning Division	
X	Planner	Planning Division City of Anaheim, California	
X	Statistician	Orange City, California	
	Electrical Engineer	Department of the Navy Corona, California Federal Civil Service	

WEST COAST PLACEMENTS

EEA Jobs*	JOB TITLE	LOCALE	Model Cities**
X	Program Coordinator II	City of Seattle, Washington	X
X	Contract Technician	San Diego County, California	X
	Environmental Specialist	Orange County Flood Control Division Santa Ana, California	
X	Assistant Air Pollution Engineer	City of Ventura, California	
	General Engineer in Management Analysis	Management Analysis Department U.S. Navy Construction Battalion Port Hueneme, California	
	Management Specialist	Tacoma Police Department Tacoma, Washington	X
	Chief of Management Analysis	Pay Board Washington, D. C.	
X	Associate Planner	Skagit County Planning Department Mt. Vernon, Washington	
	Project Engineer in Transportation	Golden Gate Bridge, Highway and Transportation District San Francisco, California	X
X	Planner II	King County Planning Department Seattle, Washington	X
X	Budget Analyst	King County Seattle, Washington	X
	Senior EDP Programmer	Muskegon County, Michigan Economic Development Program	
	Management Analyst	Mercer Island, Washington	
	Director of Physical and Social Sciences	Department of Public Works Chicago, Illinois	X

WEST COAST PLACEMENTS

EEA Jobs*	JOB TITLE	LOCALE	Model Cities**
	City Superintendent	City of Lakin, Kansas	
X	Senior Administrative Manager	Chief Administrator's Office Los Angeles County	X
	Program Manager	California Resources Development Center Sacramento (State)	
X	Analyst	Los Angeles County, California	X
X	Analyst	Los Angeles County, California	X
	Physical Scientist	Environmental Protection Agency, Federal Civil Service Edison, New Jersey	
X	Design Engineer	Wichita State University Kansas	X
	Broadcast Engineer	Steilacoom School District Steilacoom, Washington	
	Administrative Assistant	Orange County, California	
X	Research Investigator	Oceanographic Council Seattle, Washington	X
	EDP Programmer	Tacoma, Washington	X
X	Training Specialist	King County, Washington	X
X	Administrative Systems Analyst	Los Angeles, California Personnel Department	X
	Chief, Communications and Information Center	Department of Public Works Chicago, Illinois	X
X	Airport Accoustical Engineer	Port of Oakland Oakland, California	X
X	Utilities Coordinator	Bellevue, Washington	

WEST COAST PLACEMENTS

EEA Jobs*	JOB TITLE	LOCALE	Model Cities**
X	Administrative Assistant	City of Simi Valley California	X
	Criminalist	City of West Covina California	
X	Engineer Aide I	Renton, Washington	
	Facilities Planner	Kent School District Kent, Washington	
X	Assistant Administrative Analyst	San Diego, California	X
X	Assistant Mechanical Engineering Specialist	Department of Lighting Mechanical Engineering Division Seattle, Washington	
X	Assistant Administrative Analyst	San Diego Personnel Department San Diego, California	X
	Special Consultant	Department of Human Resources San Jose, California (State)	X
	Special Consultant	Department of Human Resources San Jose, California (State)	X
X	Administrative Analyst	Department of Community Development Pasadena, California	
X	Coordinator II	Office of Human Resources Seattle, Washington	X
	Consultant/Public Health Chemist	Orange County Health Department Santa Ana, California	
X	Administrative Analyst II	Santa Clara County California	X
	Construction Inspector Trainee	Los Angeles, California	X

WEST COAST PLACEMENTS

EEA Jobs*	JOB TITLE	LOCALE	Model Cities**
X	Personnel Analyst	Santa Clara County California	X
X	Senior Planner	Chula Vista, California	
X	Project Coordinator for EEA	Personnel Department Santa Clara County California	X
X	Mechanical Engineer Assistant	City Planning Department Los Angeles, California	X
	Systems Analyst	Harrisburg, Pennsylvania	
	Assistant City Auditor	City of Norwalk, Ohio	
X	Navigation Investigator	Department of Natural Resources Olympia, Washington (State)	
X	Administrative Aide	Department of Parks and Recreation Carson, California	
	Applied Science Programmer	Department of Public Works Sacramento, California (State)	
X	Junior Programmer	Department of Finance Santa Monica, California	
	Wage Analyst	State of Washington Seattle, Washington	X
X	Administrative Analyst	Valley Medical Center Santa Clara County, California	X
	Welfare Program Executive	Department of Public Welfare Harrisburg, Pennsylvania (State)	
X	Study Committee on Economic Development	King County, Washington	X
X	Study Committee on Economic Development	King County, Washington	X

WEST COAST PLACEMENTS

EEA Jobs*	JOB TITLE	LOCALE	Model Cities**
	Management Analyst	Federal Civil Service Fort Ord, California	
X	Job Developer	Department of Human Resources San Diego, California (State)	X
	Flood Control Specialist	Flood Control Division Los Angeles County, California	X
X	Proposal Writer	State Highway Department Los Angeles, California (State)	X
X	Job Developer	Department of Human Resources Department of Employment Los Angeles, California (State)	X
X	Administrative Analyst III	Santa Clara County	
	Draftsman	Northwest Natural Gas Astoria, Oregon	
	Special Consultant	Human Resources Division Department of Employment San Jose, California (State)	X
X	Unknown	County of San Diego	X
	Budget Analyst III	City and County of Denver Colorado	X

*EEA Jobs: An "X" to the left of placements reflects those jobs which are classified under the Emergency Employment Program.

**Model Cities: An "X" to the right of placements reflects those jobs which are located in jurisdictions with Model Cities Programs.

LISTING OF PRIVATE SECTOR PLACEMENTS

For East Coast Participants
As of April 30, 1972

JOB TITLE	LOCALE
Manager, Radar Systems	KMS Industries Newport Beach, California
Senior Staff Chemist	Sperry Rand Corporation Huntsville, Alabama
Director of Advertising and Corporate Planning	Levitt Multihousing Corporation Great Neck, New York
Chief of Unit Coordination	Boston University Medical Center Boston, Massachusetts
Product Engineer	Simplex Wire and Cable Hydrospace Systems Division Newington, New Hampshire
Manufacturing Engineer	Parker-Harrison Company Huntsville, Alabama
Unknown	Sperry Rand Corporation Huntsville, Alabama
Senior Engineer	AVCO(Research Laboratory) Everett, Massachusetts
Project Engineer	Northrop Corporation Norwood, Massachusetts
Systems Manager	Cardion Electronics Woodbury, New York
Engineer	Bell and Howell Pasadena, California
Engineer Spacecraft Integration	General Electric Company Kennedy Space Center
Plant Manager	Knitronics Corporation Lincolnton, North Carolina

EAST COAST PRIVATE SECTOR
As of April 30, 1972

JOB TITLE	LOCALE
Microwave Engineer	Ikor Corporation Burlington, Massachusetts
Marketing Manager	Blanchard Stebbins Manchester, New Hampshire
Senior Engineer/Software	Raytheon Company, Equipment Division Sudbury, Massachusetts
Mechanical Engineer	Alpha Industries, Inc. Woburn, Massachusetts
Junior Engineer	Seaboard Coastline RR Company Jacksonville, Florida
Senior Engineer	Vitro Laboratories Silver Spring, Maryland
Engineer	Cocoa Beach, Florida
Consultant	Cornell University
Unknown	Methuen, Massachusetts
Mechanical Engineer	Notronics Norwood, Massachusetts
Researcher	MIT Lincoln Lab Boston, Massachusetts
Unknown	Blue Cross-Blue Shield Concord, Massachusetts
Metrology Engineer	Litton Ship Systems Pascagola, Mississippi
Textile Production Engineer	Knitronics Knitting, Inc. Cherryville, North Carolina
Research Engineer	United Aircraft Research Laboratory Hartford, Connecticut
Marketing Representative	New York, New York

EAST COAST PRIVATE SECTOR
as of April 30, 1972

JOB TITLE	LOCALE
Teacher (General Science)	Jersey City, New Jersey
Unknown	Melville, New York
Salesman	Plumbing and Electrical Supply Salem, Massachusetts
Senior Digital Engineer	Total Computer Systems Waltham, Massachusetts
Development Engineer	Honeywell Radiation Lexington, Massachusetts
Operations Manager	Orlando, Florida
Manager	Ling-Temco Vought Langley Air Force Base
Management Consultant	Self-Employed Action, Massachusetts
Unknown	Hingham, Massachusetts
Maritime Investigator	Liberian Maritime Services New York, New York
Senior Engineer	PRD Electronics Calverton, New York
Engineer	Federal Electric Corporation Huntsville, Alabama
Television Technician Representative	A and S Department Stores Long Island, New York
Engineer	PRD Electronics Syosset, New York
Electrical Engineer	Bethpage, New York
Utility Metal Products Production Control Engineer	Utility Metal Products Company Beverly, Massachusetts

EAST COAST PRIVATE SECTOR
As of April 30, 1972

JOB TITLE	LOCALE
Supervisor	Computer Department Aerodine Burlington, Massachusetts
Industrial Engineer	Huntsville, Alabama
Assistant Manager	Birmingham, Alabama
Salesman	Nashua, New Hampshire
Technical Representative	Fraser Laundry Equipment Company Memphis, Tennessee
Distributor	Self-Employed Huntsville, Alabama

LISTING OF PRIVATE

PLACEMENTS

WEST COAST PLACEMENTS
As of April 30, 1972

JOB TITLE	LOCALE
Engineering Supervisor	Boeing Company Seattle, Washington
Systems Manager	Boeing Company Seattle, Washington
Engineer Supervisor	Western Gear Seattle, Washington
Senior Specialist in Systems	Boeing Company Seattle, Washington
Technical Engineer	Datsun Car Company Gardena, California
Product Assurance Requirements Coordinator	Lockheed Sunnyvale, California
Design Engineer	Bede Aircraft, Inc. Newton, Kansas
Tool Designer	Detroit Tool and Engineering Lebanon, Missouri
Real Estate Salesman	Upland, California
Associate Engineer	Boeing Company Wichita, Kansas
Chief Facilities Engineer	Computer Science Corporation Leavenworth, Kansas
Research and Development Engineer	Macotech Corporation Seattle, Washington
Air Pollution Control Engineer	Minnesota Mining and Manufacturing
Unknown	Bellevue, Washington
Systems Analyst/Programmer	Washington College Chestertown, Maryland

WEST COAST PRIVATE PLACEMENTS
As of April 30, 1972

JOB TITLE	LOCALE
Unknown	Boeing Company Pasadena, California
Engineer	Aeronca, Inc. Torrance, California
Engineer	Boeing Company Kent, Washington
Unknown	Mercer Island, Washington
Industrial Engineer	Beech-Nut, Inc. San Jose, California
Senior Engineer	Boeing Company Seattle, Washington
Associate Engineer	Boeing Company Wichita, Kansas
Plant Superintendent	Automation International, Inc. Charlotte, North Carolina
Design Engineer	Dubuque, Iowa
Engineering Librarian	Global Engineering Documentation Services Newport Beach, California
Unknown	North American Rockwell California
Senior Engineer	Boeing Company Seattle, Washington
Self-employed	Mercer Island, Washington
Member Technical Staff	California Institute of Technology Jet Propulsion Lab Pasadena, California
Engineer	Boeing Company Seattle, Washington

WEST COAST PRIVATE PLACEMENTS
As of April 30, 1972

JOB TITLE	LOCALE
Project Engineer	Litton Industries Culver City, California
Engineer	Boeing Company Seattle, Washington
Engineer	Unknown
Consultant	Bellevue, Washington
Dental Supply Salesman	Bellevue, Washington
Engineer	Boeing Company Seattle, Washington
Engineer	Boeing Company Wichita, Kansas
Consultant	George S. May Consultants Bellevue, Washington
Salesman	Southern Machine Tools Company Wichita, Kansas
Public Relations	Solitron Devices San Diego, California
Project Manager	Litton Industries Culver City, California
Technical Staff Member	North American Rockwell Los Angeles, California
Consultant	Self-employed Long Beach, California
Contractor	Spokane, Washington
Associate Scientist in Materials	Thiokol Chemical Corporation Brigham City, Utah
Senior Program Analyst	Sunnyvale, California

WEST COAST PRIVATE PLACEMENTS
As of April 30, 1972

JOB TITLE	LOCALE
Consultant	Self employed Wichita, Kansas
Shop Owner	Seattle, Washington

PERCENT DISTRIBUTION OF REMAINING UNEMPLOYED PARTICIPANTS BY TARGET AREA

As of April 30, 1972

WEST COAST UNEMPLOYED:

TARGET AREA	Number of Remaining Unemployed in AEP	Percent Distribution to Total Unemployed on West Coast
Seattle	6	21.4%
San Jose	7	25.0%
San Diego	5	17.8%
Los Angeles	4	14.4%
Orange County	0	-
Wichita	6	21.4%
SUBTOTAL:	28	100.0%

EAST COAST UNEMPLOYED:

TARGET AREA	Number of Remaining Unemployed in AEP	Percent Distribution to Total Unemployed on East Coast
Boston	28	50.9%
Long Island	9	16.3%
Huntsville	11	20.0%
Cape Kennedy	7	12.8%
SUBTOTAL:	55	100.0%

PERCENT DISTRIBUTION OF
REMAINING UNEMPLOYED

As of April 30, 1972

TARGET GROUPS	Number of Remaining Unemployed in AEP	Percent Distribution to Total Unemployed
WEST Coast Participants	28	33.7%
EAST Coast Participants	55	66.3%
TOTAL UNEMPLOYED:	83	100.0%

Universe: 371

TOTAL NUMBER OF PLACEMENTS: 288

Percent Placements to Total Universe: 77.6%

TOTAL NUMBER OF REMAINING UNEMPLOYED PARTICIPANTS 83

Percent Unemployed to Total Universe: 22.4%

EDUCATIONAL ATTAINMENT
OF REMAINING UNEMPLOYED

No Degree	13	15.6%
BS/BA Degree	50	60.2%
MS/MA Degree	16	19.2%
Ph.D	4	5.0%
	83	100.0%

PROFILE OF REMAINING UNEMPLOYED

PARTICIPANTS IN THE AEP

As of April 30, 1972

TARGET AREA And Number Unemployed	Years in Aerospace (Average)	AGE Average Years	At Entry Into AEP: Number of Months Unemployed (Average)
Seattle NO: 6	18 years	47	7 months
San Diego NO: 5	15 years	49	9 months
San Jose NO: 7	17 years	51	9 months
Los Angeles NO: 4	12 years	43	12 months
Orange County NO: 0	-	-	-
Wichita NO: 6	19 years	45	10 months
Boston NO: 28	15 years	43	7 months
Long Island NO: 9	18 years	47	9 months
Huntsville NO: 11	17 years	49	11 months
Cape Kennedy NO: 7	17 years	50	8 months
AVERAGE:	16.5 years	47.1 years	9.1 months

EDUCATIONAL LEVEL AND ORAL PANEL
SCORES OF THE REMAINING UNEMPLOYED

As of April 30, 1972

TARGET AREA and Number Unemployed	Oral Panel Scores (Average)	EDUCATIONAL LEVEL:					
		No Degree	BS	BA	MS	MA	Ph.D
Seattle NO: 6	84.2	-	2	1	2	-	-
San Jose NO: 7	79.1	1	1	2	-	2	1
San Diego NO: 5	79.1	-	2	3	-	-	-
Los Angeles NO: 4	84.8	-	2	1	1	-	-
Orange County NO: 0	-	-	-	-	-	-	-
Wichita NO: 6	57.5	2	2	2	-	-	-
Boston NO: 28	73.1	5	10	5	3	4	1
Long Island NO: 9	68.9	1	4	2	1	1	-
Huntsville NO: 11	91.0	4	5	1	-	-	1
Cape Kennedy NO: 7	81.3	-	2	2	1	1	1
TOTALS:	77.6 Average Score	13	31	19	8	8	4

Appendix E

GLOSSARY OF TERMS

ADAPT - Aerospace and Defense Adaptation to Public Technology; the title given to the Orientation program conducted by the Department of Urban Studies and Planning of the Massachusetts Institute of Technology.

AEP - The Aerospace Employment Project; The official title of the project funded by the Departments of Labor and Housing and Urban Development. "Project" for short.

AOP - Aerospace Orientation Program; the title given to the Orientation program conducted by the College of Environmental Design of the University of California at Berkeley.

LEAGUE OF CITIES - CONFERENCE OF MAYORS,INC. - Refers to the organization implementing the contract with the Departments of Labor and Housing and Urban Development.

NEWSLETTER - Monthly publication of the AEP which was sent to all candidates keeping them informed of current developments.

ORIENTATION - One month course of study at the University of California, Berkeley, and the Massachusetts Institute of Technology familiarizing participants with the officials, institutions and problems of local government.

PARTICIPANTS - Refers to those ex-aerospace scientists and engineers accepted by the AEP who completed the Orientation.

PLACEMENTS IN THE PRIVATE SECTOR - Refers to participants who found jobs in private industry - in either "New" positions or with their "Previous" employer.

PLACEMENTS IN THE PUBLIC SECTOR - Refers to participants who obtained jobs at the city, county, or State government level.

RECRUITMENT PHASE - That phase of the AEP in which ex-aerospace scientists and engineers were urged to apply to the Project.

SELECTION PHASE - That phase of the AEP in which ex-aerospace scientists and engineers were interviewed and selected to participate in the Project and attended the Orientation.

SELF-HELP ORGANIZATIONS - Refers to groups of AEP participants who were organized by target area to investigate local job opportunities and serve as a communications link with the AEP office.

SUB-CONTRACTORS - Refers to the Department of Urban Studies and Planning at the Massachusetts Institute of Technology and the College of Environmental Design at the University of California, Berkeley.

TARGET AREAS - Refers to those areas of the country with exceptionally high rates of unemployment from which AEP participants were chosen: Boston, Massachusetts; Long Island, New York; Cape Kennedy, Florida; Huntsville, Alabama; Wichita, Kansas; Seattle, Washington; San Jose, San Diego, Los Angeles, and Orange County, California.

UNIVERSE - Refers to the number of participants in the Project. The current number is 371.